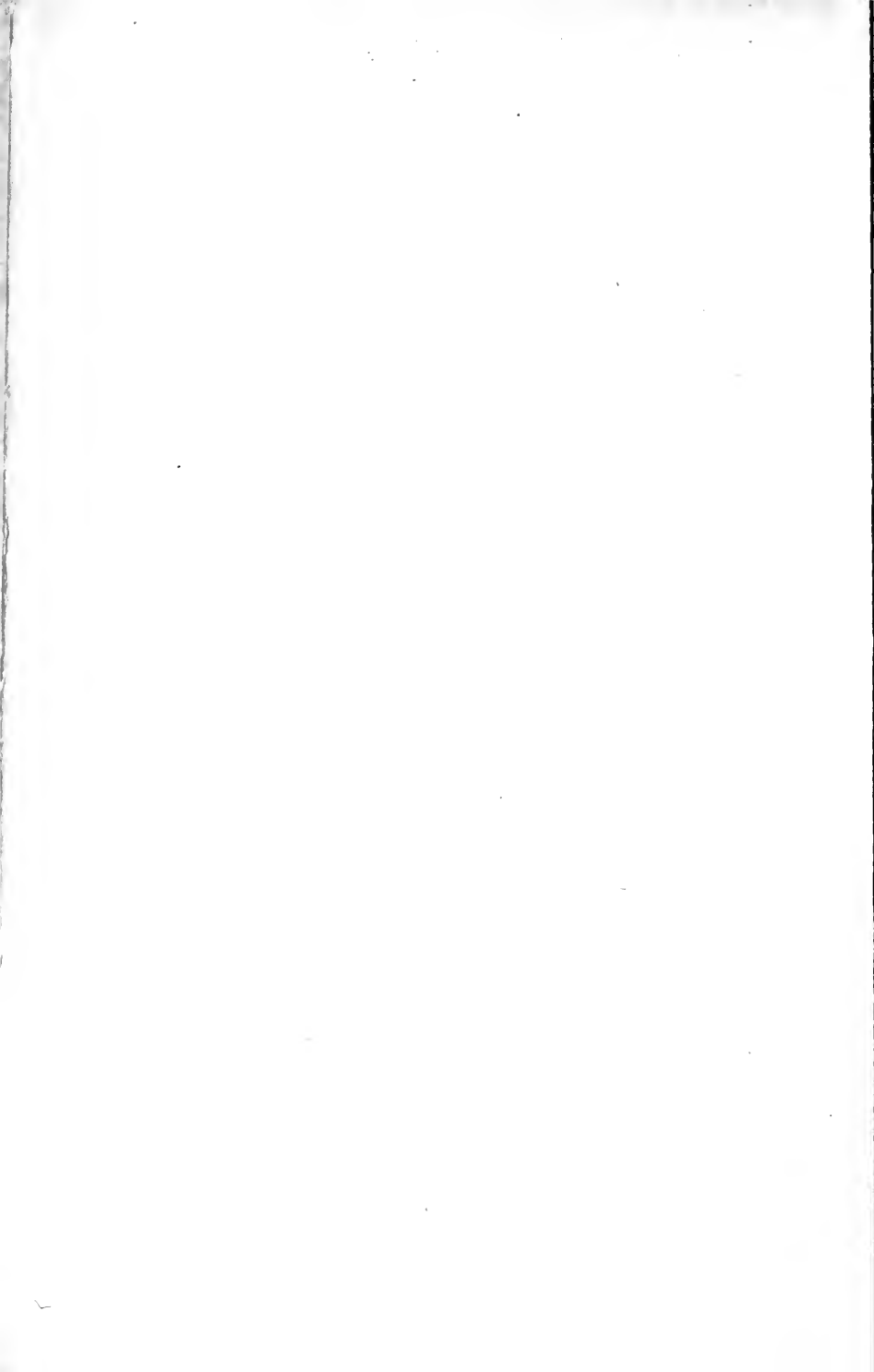






Wesley Kilgore

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# PERSONNEL MANAGEMENT

## PRINCIPLES, PRACTICES, AND POINT OF VIEW

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## PREFACE

MANY books have been written on the relationships which exist between management and worker. If evidence of advancement in point of view and in sanity of attitude is desired, we have only to point to such books as these, many of which we have named in the bibliographies accompanying the several chapters in this volume.

It is natural that few, if any, of these books should attempt to cover the whole field of personnel relations in industry, for it is, indeed, a broad field and its phases are many and varied. Volumes could be written upon any one of these phases—cooperative management, profit sharing, pension plans, training, supervision, and so forth—and not half the truth be told. For aside from the extent and ramifications of this branch of business administration, it is a progressive study, and what is accepted as truth today may be but part of the truth tomorrow.

So in presenting this book to students of personnel management, we have attempted to outline the principles of personnel adjustment in industry as they are known today, with no claim that we are covering the entire field of industrial relations and with no thought that the truths which we enunciate will not grow and develop year by year with the investigation and research which industry is coming more and more to devote to this branch of the science of management. Our purpose is to crystallize modern thought on the subject of human adjustments in industry, both as an expression of what has been achieved so far and as a basis for further growth.

The personal differences between individuals have come to be recognized more and more as vital factors in industrial efficiency. The productivity of groups of workers is necessarily dependent, in large part, upon the productivity of

the individual members of those groups, each in his own work. Individuals are differently endowed with those faculties of mind and body—especially those faculties of mind—which enable them to contribute to the work of the world. Because of these differences in workers and because of the differing requirements of various kinds of work, one person will not succeed equally with another in a given task, nor will two tasks be done equally well by the same worker. Unless a proper adjustment is made between the worker and his work in these terms and between the worker and his working environment, the individual will not contribute in fullest measure to the economic well-being of society, nor will he benefit personally in maximum degree, nor will the work itself be done as well as it can be done and as well as it should be done.

The achievement of these wholesome human adjustments is essential to true industrial efficiency and is a prerequisite to the success of other important agencies—such as those named above—in establishing wholesome relationships between management and men, in promoting industrial production and in advancing social well-being.

In this book we have attempted to set forth the principles underlying the creation and maintenance of these wholesome adjustments, to define the instruments necessary in the work and to suggest how they can be utilized most effectively in making these principles active, dynamic forces in management.

The reader will find no suggestion that these instruments and practices are perfect, even if—as we view them today—the principles which underly them appear fundamental and unchanging. He will discover no claim that because a certain procedure has proved successful in one plant or company, that it will necessarily prove equally successful in another. He will find himself warned, at times, to refrain from accepting half-proved facts as conclusive, to recognize the limitations of certain instruments and certain practices as well as their possibilities. But he will be

asked, frankly, to approach the study of these things with an open mind, free from prejudice for or prejudice against, to demand proof or ample evidence but to hold himself in readiness to accept it when it has been found. For such an open mind is necessary in all progress in thought, whether it be in this particular field of management or in any other branch of experimentation.

Unless we investigate in a scientific spirit, unhampered by tradition or prejudice, and unless we are willing to accept the fruits of our investigation as the basis for present action and further research, we cannot grow in knowledge and we are closing the door to opportunity.

What industry has learned in the field of industrial relations is not the yield of any man or group of men, nor is it in the possession of any man or group of men. The names of those who have contributed to the truths which are set forth in this book are legion. Our part has been that of bringing together within these covers, so far as it has been possible, the facts of common-sense direction of workers regardless of where and how they have been discovered and regardless of where the credit for them lies. Our only regret is that, through our own limitations, we shall be unable to give credit to all those to whom credit for research in this field is due.

In 1917, shortly after America entered the World War, The Committee on Classification of Personnel in the Army was created by the War Department to help provide the ways and means of discovering the special qualifications of the hundreds of thousands of men flowing from industry into the army in order that their individual capabilities might be utilized best in the country's service. Besides the authors, the Committee included E. L. Thorndike, James R. Angell, Walter V. Bingham, Raymond Dodge, Horace L. Gardner, John J. Coss, W. R. DeField, Wm. Browne Hale, J. J. Swan, R. M. Yerkes, Winslow Russell, John F. Shepard, E. K. Strong, Philip J. Reilly, L. M. Terman, and J. B. Watson. Others associated with the Committee were M. H. S.

Hayes, Beardsley Ruml, Stanley B. Mathewson, Louis B. Hopkins, Joseph W. Hayes, Clarence Yoakum, J. Walter Dietz, C. R. Dooley, M. M. Jones, W. S. MacArthur, R. H. Puffer, Wm. A. Sawyer, Kendall Weisiger, Alvin E. Dodd, Joseph H. Willits, Donald G. Paterson, A. W. Kornhauser, H. J. Ryon, Harry Wellman, Jos. F. Page, Samuel J. Gummere, Delos Walker, Storm V. Boyd, and Grenville Clark. The regular army officers who had much to do with the success of the work were General H. P. McCain, General Robert C. Davis, General Henry Jervy, General Peter C. Harris, General R. I. Rees, Colonel A. M. Ferguson, and Colonel Jens Bugge.

Under the direction of the Committee, an army organization of 7,000 officers and men interviewed and classified over 3,000,000 men and placed over 1,200,000 in the army service where they could use their special abilities in a degree that would have been impossible otherwise. This fact is mentioned for three reasons. In the first place we wish to acknowledge the contributions made by these men. In the second place, while the work in the army was far from perfect according to industrial standards, it was done better than ever before under such emergency conditions and it did much to formulate certain of the basic principles underlying personnel work in industry. In the third place, it provided an unprecedented stimulus to American employers to study the adaptation of these principles to the personnel problems of industry.

After the war, the authors, with Louis B. Hopkins, Stanley B. Mathewson, Beardsley Ruml, and Joseph W. Hayes, organized as The Scott Company for the purpose of assisting employers, through research and consultation, to develop the technique and procedure of applying these principles to their own organizations. Much of the material in this book is drawn from their experience in cooperating with more than forty industrial and business concerns, including meat packers, banks, manufacturers, department stores, insurance companies, and public service corporations.

We desire to acknowledge with thanks the contributions of all these gentlemen. The preparation of this book would have been quite impossible without their cooperation. We wish to state our appreciation especially of the help given by Stanley B. Mathewson and Donald G. Paterson in preparing certain chapters and to express our indebtedness to Louis B. Hopkins for contributing important parts of the text and for advising and consulting throughout with reference to the form and content of the book.

WALTER DILL SCOTT  
ROBERT C. CLOTHIER





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# I

## THE FIELD OF PERSONNEL ADMINISTRATION

The historical background of industrial personnel work. The results of the mechanical revolution. The human conception of labor vs. the commodity conception. The kinship of the economic and the social aspects of management. The problem of man-power in the army. Essential facts of the principles of individual differences. Three basic elements in human adjustments in industry.

THE story of industrial progress vies in interest and romance with the most fascinating stories of human adventure. All history, in that it traces the development of the thinking of men and its results, must appeal to those who are looking to the future. Intelligent planning for what lies ahead must be based upon the intelligent consideration of what has gone before.

The statesman of today acts only in part with respect to social and political conditions as they exist today. He acts also with respect to the manifold vicissitudes and experiences through which conditions became what they are today. The thoughts and actions of Washington, of Disraeli, of Bismarck, of Napoleon are influencing the thoughts and actions of present-day leaders. The action taken by the American colonies at the time of the Stamp Act, the course followed by England in the establishment of its great Indian empire, the procedure of the Southern states when faced with the alternative of state sovereignty or unionism—all these courses of action and all their consequences are influencing, consciously, the stands and beliefs of the great powers of today and of scores of new-born countries in Europe.

## THE HISTORICAL BACKGROUND OF PERSONNEL WORK

As in politics and statesmanship, so in business and industry. Business men are making their plans and their decisions in the light of plans and decisions others have previously made along the same lines. Few business houses or industrial concerns are willing to entrust their destinies to executives who are not thoroughly conversant with the history of business principles in general and of the developments in their own fields of activity in particular.

It is exceedingly important in a study of industrial personnel work, consequently, that we should consider the historical background of the relations between employer and employee and trace the steps which have brought us to our present conception of the principles which underlie the wholesome and effective association of management and worker.

In the middle ages the lot of the worker was not a particularly happy one. He lived a kind of grey life. His ambition was to be able to live and his efforts were devoted to earning the bare means of subsistence. Rarely did the thought of improving his lot cross his mind. The twinkling star of opportunity had not risen. The sunshine of equal rights had not lighted his ways. As he was born, so he lived and died.

In America, young and fresh and unfettered by ancient traditions and class privileges, there appeared promise of better things. During the early part of the nineteenth century, there was little parallel between industrial conditions in America and in Europe. The majority of the people lived on the land and there earned their livelihood. There was work for all and plenty. In the cities and towns this was the age of the small tradesman, the household industry; the age of the small workshop. In a degree probably never before attained, the workers were regarded as human beings. Probably they were happier than they had ever been before. In certain fields, industrial activity assumed a very



wholesome form. Mammoth organizations had not yet come into being. Because the industrial unit was the home and the small workshop, the employer and his men were thrown together in a close personal relationship. They worked at the same bench and ate at the same table. In such a relationship as this, discontent and friction were less likely to arise through misunderstanding, although, of course, stupidity and refusal to cooperate inevitably brought about friction and discord in those days as they do today and as they always will. This condition of relative concord and efficiency might well have been the continuing basis for labor relations in industry had not the inventive faculty of mankind stirred, and industry entered upon the age of machines and machinery.

Eli Whitney invented the cotton gin and, overnight, the need of the South for cheap labor overwhelmed all other considerations. Slavery was introduced and with it came social evils which are barely suggested in Mrs. Stowe's immortal volume. It is hard for us now to understand the mental processes by which a nation based on equality of human rights could condone a practice which outraged them so flagrantly, but we must remember that the economic need was, apparently, great and justice was then, as it is now, in a state of transition and growth.

In fact, the social conscience still slept. Privileged classes of that day believed that the world was theirs in a degree that even now our most obtuse reactionaries would not make themselves ridiculous by claiming. The lesson of the French revolution in the field of government had not been taken to heart by employers in the field of business. It was not appreciated that the ultimate well-being of society as a whole, not the well-being of some privileged group, is and must be the standard and wherewithall of success of any enterprise which serves society. Hundreds of thousands of lives and seas of blood were the price we had to pay to learn that lesson.

## RESULTS OF THE MECHANICAL REVOLUTION

With the elimination of slavery, a brighter day seemed to have broken, but after all it was only the early grey dawn. Men now worked for wages, for pay—a great improvement over working for nothing. The wholesome relationships of the small shop and the household industry became even more general. The mechanical revolution, however, upset this state of comparative social tranquillity. The home and the shop gave way to the factory. Industry learned that by grouping workers together in large numbers, and that by standardizing their activities, production could be tremendously increased and costs reduced. Certain benefits to the human race from this development are great; machinery is the basis for our present plenty and for much of our assumed enlightenment. Civilization has advanced more since the advent of machinery than it had advanced previously since the Stone Age. It would be a brave person who would deny it even if recent years have witnessed the prostitution of its wonders to the evil purposes of war and destruction. Although morning clouds still dull our rising sun, mankind has been more plenteously supplied with the good things of the world since the birth of the mechanical age than it had ever been before.

But every current has its backwashes and contrary eddies. While mankind as a whole has benefitted greatly, the moths of misunderstanding began gnawing at the fabric of sympathy and cooperation which had previously existed between employer and employee. Whereas, in the home and shop, discontent and friction seldom could exist as a result of *misunderstanding*, a gulf began to yawn between the employer and his workers. Where the workers in a single group previously numbered a handful, they now numbered hundreds and even thousands. Whereas, previously, the employer enjoyed the rich gift of friendship with his associates at the bench, it now became possible for him to know them only casually, if at all; to know their faces and names

perhaps, but not their weaknesses and their strengths, their interests, their ambitions, their family fortunes, their follies, and their hobbies. They became to him a group of workers, a collective thing consisting of so many human beings capable of doing so much work. They became, in fact, almost as much a creature of mechanical power, and that alone, as the very machinery they operated. And so, probably without the employer's knowledge and probably against his real purposes, there came into being an attitude on the part of management toward the workers which has become known as the "commodity" conception of labor.

#### THE COMMODITY CONCEPTION OF LABOR

Again the individual was immersed in the group. His individual aptitudes, interests and troubles were forgotten. He became a cog in a great machine—a hackneyed term because so apt. He had to be a very good and efficient cog, else he was extracted and a new cog put in his place. He had to be a very respectful and unassertive cog. Who has not heard the classic reference to the foreman who "fired a few now and then to put the fear o' God in the rest of them"? The divine right of kings—this was before the war and there were some then—had its counterpart in the divine right of the foreman. There were far too many employees for the management, aloft on the bridge, to consider the woes and merits of each, so management delegated this function to the foremen, who in those days were not particularly qualified to exercise it, and almost always management backed up the foreman right or wrong. Management said it would be injurious to discipline to do otherwise.

So the workers found themselves subject to the rulings of sub-bosses who generally were adept as far as the work itself went but who were not schooled in handling men; if a pun will be permitted, they were more adept at man-handling. So fear entered the workers' lives, a new fear;

(the heart-sickening, efficiency-destroying fear of losing their jobs undeservedly.

And the star of opportunity which had just risen, itself went behind the morning clouds. And into the splendid spirit of kinship with the high boss, of confidence, of pride in workmanship, dissatisfaction and discontent began to pry their way. Under the new regime, there seemed to be little connection between excellence of workmanship and reward. There seemed to be a closer connection between defensive measures and "getting what was coming to you." So it became apparent that the growth of the commodity conception of labor brought with it a great deal of human unhappiness and a great deal of inefficiency because men's minds were diverted from production to protection.

#### THE BEGINNINGS OF THE PERSONNEL MOVEMENT

Some few years ago a few forward-thinking employers here and there began to preach and practice a strange new doctrine. This doctrine was based upon a frank acknowledgment that the old personal contact between employer and employee had been lost and that the lack of it was responsible for a series of evils. It stated that arbitrary control by management was apt to lead into troublous paths and that cooperation between management and labor was essential to efficient production. It made the declaration that the minds of the workers as well as their bodies must be considered in management and that the state of their minds had much to do with the value of their services. It protested that if men are not "on side" in interest and loyalty, they are apt to be *in absentia* on the job and it went on to make the assertion that what management wants in its workers is not their physical presence, but the full measure of service that physical presence makes possible. Buying mere physical presence with good wage dollars that ought to buy as much individual production as possible is a costly process.

This new doctrine went on to say that men cannot with justice and profit be regarded as all alike or handled all alike. It pronounced that men differ one from another as far as their mental qualities are concerned far more than they differ physically. No one had ever advocated clothing all the men of the country in shoes and clothes of the same size and shape and the fact began to dawn upon us that it was equally absurd to attempt to endow them with the same mental habiliments. It was recognized that one man may have unusual aptitude along certain lines and that another may lack it entirely; obviously it was out of order to attempt to cram them into the same job. It became apparent that one had the ability to learn in a degree entirely lacking in the other, that to try to develop them equally in the same way was similarly impracticable. It made itself clear that one man had distinct ambitions along one line, another along another and that any stereotyped incentive would stimulate them unequally. The difference between men temperamentally forced itself upon the attention of these forward-thinking employers and they saw that while one method of control or "discipline" would be effective with respect to one, another method would be required with respect to another.

#### THE HUMAN CONCEPTION OF LABOR

But the tenet of this new doctrine which left many of the old school executives gasping for breath—and in fact still makes respiration difficult for some—was that the workers had certain "inalienable" rights as human beings and that it was industry's duty to recognize these rights. This was a blow at the honored belief that the worker's only function was to deliver as much as he was capable of delivering, and that management possessed every right in the world to fire him as soon as he failed to do so. It held that all men are equal, in the sense that they have much the same impulses and reactions as all other men. It held

that industry had a moral obligation not only to permit its workers to achieve these rights but to encourage and help them to make as much of themselves and of their lives as possible. In short, this doctrine stated brazenly that industrial concerns have three obligations—to their stockholders, of course, and to their customers and the public, but to their employees as well.

The student of industrial progress cannot but have a sense of embarrassed amusement that surprise and resentment should have greeted the preachings of these forward-thinking employers, the same wonderment that he feels when recalling that once upon a time the king could do no wrong, that we burned witches at the stake and estimated how many devils could dance on the point of a needle. The truth is bound to prevail, however. We are going ahead too fast—and perhaps too intelligently—to persist in ignoring facts when they are clearly demonstrated. And so, whereas a few years ago the employers who entertained these enlightened views on labor might have been counted on the fingers on one hand, it is now true that industry, generally, is adopting their beliefs. So it seems that while the morning clouds are still with us, the sun is slowly breaking its way through.

#### THE RELATIONSHIP OF ECONOMIC AND SOCIAL ASPECTS OF MANAGEMENT

In fact we seem to have arrived at the point where it is recognized that industry has a joint task and opportunity: to reduce waste in production and to reduce loss in "human happiness." Our reason for coupling them is obvious. They are so inter-related that one cannot be affected without affecting the other.

There is a very definite tie-up between the economic and social aspects of that phase of management which has to do with the administration of the workers and which we call, for want of a better term, personnel work. The hard-boiled executive who clamors that he has no time for such fol-de-

rol is just ignorant, that's all. And the lantern-jawed visionary at the other end of the line is equally ignorant when he declares that he is interested alone in the well-being of the workers. No matter how little may be their mutual esteem, in the measure in which they are intelligently working for production and for social welfare, in that measure they are traveling in double harness. And they might as well quit cavorting to right and left, recognize that the right road lies straight ahead, and pull together.

Group production must depend upon the production of the individuals who comprise the group. When this fact is fairly faced, the emphasis is laid directly upon the effectiveness of the individual in his work. The average man and woman will find satisfaction in his work when he is qualified for it and interested in it, when he loses himself in it. When, by action of the management or otherwise, he gains this relationship with his work he will be as efficient a worker as it is possible for him to be. And not only will he be efficient, he will find a sense of personal happiness that comes only through such an adjustment. Because he is efficient, he will get out more and better work and he will earn more; an increment management will be glad to pay because it represents the purchase of greater personal production. And, to continue, because he earns more, he is better equipped to provide himself and his dependents with those physical and cultural advantages which in turn contribute to his happiness. This again reacts favorably upon his mental attitude and consequently upon his power to produce, whereby the economic benefits to his employers are again enhanced. It is a spiral—not a vicious one this time—making continuously for increased production and for greater personal happiness.

#### THE PROBLEM OF MAN-POWER IN THE ARMY

When America entered the World War in 1917 we came face to face with the problem of man-power in a way we

had never faced it before. A tragic example presented itself to the General Staff. In 1914 England found itself overnight compelled to send hundreds of thousands of men across the Channel to help hold the Germans back. Lord Kitchener's volunteer plan was then in effect. As is always true in the case of an emergency of that kind, the best men responded, and the best men, inevitably, are the trained men. So scores upon scores of thousands of skilled men went to France—to their death. And England lost them, and their skill with them. Later the selective draft was instituted and men were chosen for the technical and non-technical places in the army according to their qualifications, but the valued skill of those first volunteers was never retrieved and later in the war, England needed it badly.

The General Staff at Washington recognized that manpower is not a question of numbers of men (although for want of a better unit of measurement numbers were used) but of their effectiveness. It was recognized (and this is not generally known) that one-half the men in a fighting regiment must be skilled men, for this was a war of machinery, and that 80% of the men in the non-combatant units must be skilled men. Obviously, if England's experience was to be avoided, there was need for some method of finding out the special abilities of the thousands of men flowing from industry into the army. It was essential that they be used in the army in such a way that their skill, gained at tremendous expense to industry and impossible to duplicate in time to meet the emergency, should serve the army's needs. So the Secretary of War called to Washington a number of men who had been active in industrial personnel work and charged them with the task of creating the organization which would serve this purpose. This group of men included employers of labor, personnel managers, and psychologists.

This group went to work, pooled its experience, organized the necessary technique, trained the army officers and men who were to do the actual work, and superintended its



operation. According to industrial standards of perfection, it can hardly be said that the job was well done. The time was too short for doing the work on a leisurely industrial basis. But from the point of view of the army, it was done better than it had ever been done before and the precious skill of hundreds of thousands and millions of men who comprised the army was harnessed to the country's service in a degree that would otherwise have been impossible. Altogether some 3,000,000 men were classified and 1,200,000 were placed with considerable success where they could use their special abilities properly. This enterprise is mentioned for two reasons: first, because in a numerical sense it was the "biggest" personnel job ever attempted and second, because it had a tremendous educational and inspirational effect upon the employers of the country.

#### INDUSTRY'S REACTION TO THE ARMY'S WARTIME PROCEDURE

In fact, they responded almost too heartily. By this it is meant that when the war was over, many of them attempted to apply the principles of the army work to their own establishments without recognition of the fact that the army procedure was not applicable to industrial establishments without marked modification to the particular conditions of each. It is probably true as a result that a reaction set in later, sufficient at least to retard slightly the onward march of sensible practice in this field.

However, the net results were entirely favorable. The experience of the army, coupled with the labor shortage which immediately followed the war, caused employers to think and think deeply about personnel work as a factor in efficiency. And many of them have proceeded intelligently to apply the principles of the army work to their establishments through the development of methods better suited to their needs than the army methods, unmodified, could possibly be. Probably American industry was thinking

more intelligently and constructively about human differences and their effect on production than it had ever done before.

Especial stress is laid upon the matter of individual differences because they have not had the same consideration by industry as other important phases of industrial relations, such as those projects which consider the interests of the workers as groups: shop committees, insurance funds, pension funds, "industrial democracies," and so forth. The authors do not intend to minimize in the slightest the importance of these group projects. They are heart and soul in sympathy with such plans when worked out along common-sense lines. In this book, however, special consideration is given to the worker as an individual, rather than as a member of a group because, in this field, industry has made relatively little progress. And there is much to be done.

#### THE ESSENTIAL FACTS OF THE PRINCIPLES OF INDIVIDUAL DIFFERENCES

There are several fundamental facts which must always be borne in mind in the study of this work:

First: one individual differs from another in those personal aptitudes, those special abilities with which he is equipped and which he is able to contribute to the work of his company in exchange for his salary.

Second, individuals differ in interest and motive and respond best to varying stimuli.

Third, the same individual changes from day to day and from year to year in ability (both in degree and kind) and in interest.

Fourth, different kinds of work require different kinds of personal ability in the persons who are to perform them.

Fifth, granting equal ability, different kinds of work are done best by persons who, temperamentally, are particularly interested in them.

Sixth, the work in each position in a company changes as time goes on; duties are added and taken away. Sometimes the change is negligible, sometimes it is great. In the measure in which it takes place, a similar change is apt to take place in the abilities and interests the work requires of the worker.

Seventh, environment—working conditions, supervision, relations with the employer and with fellow-employees, opportunity, and so forth—exercises a tremendous influence on personal efficiency and consequently on group production.

From this it is apparent that the personnel situation in any concern is in a state of more or less fluidity. Both sides of the equation are changing all the time. The work in each occupation and consequently the characteristics of ability and interest required in the worker vary from month to month and from year to year. The abilities and interests of the individual workers change and develop, usually for the better.

#### SQUARE PEGS AND SQUARE HOLES—AN OBSOLETE CONCEPTION

Consequently it is apparent that the old-time concept of personnel work as “putting square pegs into square holes” is entirely inadequate. Clearly there is a family resemblance between the “square peg” concept and the statement that personnel work consists of man-analysis, job-analysis and the bringing of man and job together. Man-analysis is essentially discovering the shape of the peg; job-analysis is essentially discovering the shape of the hole. The phrase “The right man in the right place” is obviously an echo of the square peg idea.

The inadequacy of the square peg concept arises from the fact that it sharply discriminates between the worker and his job and tends to regard each as a rigid, inelastic entity. Under this concept, industry’s task is to bring two rigid, inelastic units together which fortunately are so shaped that they fit. The coldness and mechanicalness of this point of view

is obvious; it is not surprising that it results so frequently in an impersonal jig-saw-puzzle attitude toward the problems of industrial personnel. There is no recognition here of the fact that men and jobs are changing in themselves, and plastic, yielding here and giving there to outside pressure. There is no acknowledgment of the common fact that with exposure to a square hole, a round peg (we are speaking of human pegs now) tends to become squarish; there is no appreciation that the square hole takes on a certain round appearance.

This new point of view in industrial personnel differs from the square peg concept in that it recognizes that the job exercises an influence upon the worker and, conversely, that the worker exercises an influence upon the job. In fact, the job is never exactly the same job when filled by different persons, for each stamps his own impression upon it. Job A will have certain characteristics making for efficiency or inefficiency, as long as Worker M is on it; it will have other characteristics when M is replaced by N.

#### THE WORKER-IN-HIS-WORK UNIT.

And M is never quite the same man in two different jobs because, conversely, the jobs react upon him. In Job A he may be capable and efficient; in Job B he may be much less so.

This leads us to the conception of the **worker-in-his-work** as an entity all by itself. We do not think of the hiring of a worker as the connecting of a man with a job; it is the creation of a worker-in-his-work unit. We do not think of the release of a worker as the separation of a man from his job; it is the destruction of that particular worker-in-his-work unit.

The hiring of a new worker for the job will not reproduce the same worker-in-his-work unit; a new worker-in-his-work unit has been brought about. The transfer of the worker

to another job will not reproduce it; again another new worker-in-his-work unit has been created.

Management's task is to make each and every worker-in-his-work unit, as effective as possible. The achievement of this task makes it necessary to consider each worker-in-his-work unit from three different angles—from the points of view of Capacities, of Interests, and of Opportunities. Let us consider the real meanings of these terms.

#### THE THREE ELEMENTS IN A WORKER-IN-HIS-WORK UNIT

For want of a better word, Capacities is used to indicate those abilities, those attainments of mind and body, which a worker is able to bring to his work and which, if he chooses, he can exercise in its performance. Inheritance naturally has considerable to say as to what a person's Capacities are.

Environment has a great deal to say. Those unseen but always obvious qualities of character such as integrity, persistence, and mental acquisitiveness are probably the products more of these two fundamental influences than of any others. Formal education, vocational experience, special training—these bear directly upon those more patent capacities of knowledge, ability to think, technical skill which, too, make for the individual's effectiveness in this work or in that.

It has been said that each one of us is a symposium of what he was born with plus what he has acquired since through experience—experience in this sense including education and training. Man's capacities, therefore, include a great variety of intangible personal characteristics and concrete abilities, all of which do or do not make for success in any given kind of work. It is probably quite impossible to tabulate a complete list of capacities, but were it possible, such a list would include such characteristics as physical health, physical strength, agility, eyesight, hearing, dexterity, nervous coordination, appearance and manner, judg-

ment, initiative, aggressiveness, thoroughness, disposition, tact and diplomacy, organizing ability, supervisory ability, culture (if that word may be used to express the indefinable but desirable result of education), knowledge (general or along specific lines), adaptability, and skill along specific lines. Certainly any consideration of the wherefores of the effectiveness of any worker-in-his-work unit involves a consideration of the degree to which the worker contributes such capacities as against the degree to which the work requires them.

Interests have to do with another department of our being. This word, too, is but a makeshift, as a special meaning, a very broad meaning, must be read into it, if we are to achieve our purpose. Whereas, Capacities have to do with the attainments and abilities of the individual, Interests have to do with his volitional life. In this connection we are concerned not only with wishes and ambitions, those consciously formulated motives for activity; we must also consider the instinctive and impulsive tendencies to act, the unconscious trends, the vague yearnings, the restless and ill-defined cravings which play so profound and so slightly recognized a part in human efficiency. These are the springs of action, in response to which capacities are released most fully in the performance of work. When they are coordinated with capacities, when the individual's interests (as here defined) lie in the field in which his capacities also lie, then the individual must of necessity be an efficient individual provided—

This "Provided" is a big word in this connection. It leads us directly to the third point of view from which the worker-in-his-work unit must be regarded. If the worker-in-his-work is to be an effective unit of production, Opportunity must be provided for the worker to exercise his special Capacities and to satisfy his special Interests. It is obvious that Opportunity here is used in a technical and very broad sense. It is not equivalent to opportunity for advancement (although that is included). It implies op-

portunity to make good use of the abilities with which, by inheritance, environment or experience he is endowed. It implies opportunity for self-expression, for the satisfaction of such creative instincts as he may possess, for such growth as he craves, for the fulfilment so far as possible of those desires and ambitions of a personal nature (for civic activity, for proper leisure, for family responsibilities) with which he may be endowed.

There is a close tie-up between the Opportunities of a certain position and the requirements of that position as we have discussed them above. In fact they are almost synonymous. For in the measure in which a given kind of work requires certain abilities on the part of the worker, in that measure it yields the opportunity to that worker to exercise those abilities. In the wholly efficient worker-in-his-work unit, consequently, Opportunities and Capacities will be wholly reciprocal, for in such a situation:

The Capacities of the worker will be those Capacities required by the work, no more (for those possessed by the worker but not needed by the work would then be wasted) and no less (for then the requirements of the work would not be satisfied);

The Interests of the worker will be those Interests which stir these Capacities into fullest action in the performance of his special work; and

The Opportunities of the work, provided by the position, will give the worker full freedom in the exercise of his Capacities and in the satisfaction of his Interests.

If we may employ a simple graph to illustrate our principle, let us regard the pyramid on page 18 as expressing a well-developed worker-in-his-work unit. In this instance management has succeeded in so selecting the worker, in so ascertaining his Capacities and Interests, in so determining the requirements and Opportunities of the job, in so furnishing incentive and harnessing his Interests to his work, that (a) he possesses the Capacities required by his work (no more, no less), that the work provides the Opportunity for

the exercise of those Capacities; that (b) his motives and Interests lie directly in the performance of those duties and so coincide with his Capacities (this latter is usually the case; most men are interested in doing what they can do best and vice-versa); that, (c) the work consequently provides the Opportunity for the satisfaction of his Interests. This perfect balance between Capacities, Interests, and Opportunities is suggested by the equivalence in size of the three small triangles illustrated in Figure 1.

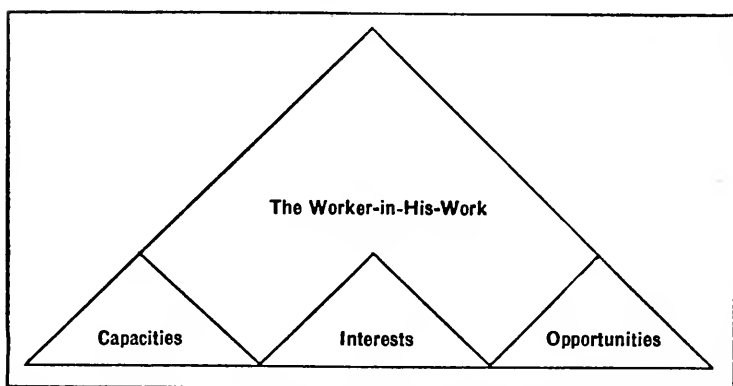


Figure 1: Chart showing the perfect balance between Capacities, Interests, and Opportunities

Of course, such perfection of adjustment as is suggested in this graph is attained seldom in industrial practice. Too great difficulties accompany its achievement. Usually there has been an adequate supply of labor so management has not been impressed with the need for studying manpower in the way it has studied processes, machines, methods and problems of mechanical power. Again, the elements here are not easy of ascertainment and measurement; we are dealing with things that are abstract and varying, and therefore, considered carelessly by industry as visionary, regardless of the tremendous effect they exercise upon quality of product, production, and profits.



## PERSONNEL MANAGEMENT AN INEXACT SCIENCE

As a matter of fact, personnel administration will not for a long time be an exact science in the sense that mathematics and even biology are exact sciences. No one yet knows how to measure Capacities, Interests, and Opportunities. Considerable strides have been made with respect to Capacities and Opportunities, but industry has a long way to travel before it will be equipped to weigh and control these factors in reducing waste in the same manner with which it weighs and controls such factors as steam pressure, mechanical power, hardness of metals, cutting angles, and so forth. And of motives, and Interests, we know next to nothing; we have only begun to study them.

There is nothing startlingly new in this conception of Capacities, Interests, and Opportunities. The average manager will admit that it is so obvious that it hardly deserves such patient consideration, that he has always practiced it. And to a certain extent he is right. No man in a responsible executive position could fill his job if he did not do so to some extent. The further truth, however, is that executives generally have not as yet begun to perceive the extent to which the principle can be carried; they have not come to appreciate the vast possibilities for improvement in production which lie in its scientific application to their own problems.

The first step in the approach to these potentialities lies in the conscious appreciation of the principles themselves and of the opportunity that exists, in practically all organizations, for their more thorough application.

Management involves the coordinated development of the worker-in-his-work unit from the points of view of Capacities, Interests, and Opportunities. When we consider that the task concerns not one or two employees, each of whom in his work constitutes a separate problem, but usually scores and hundreds and frequently thousands, it is apparent that management can attain this coordinated

development only through adequate social vision, effective instruments of personnel administration, and the effective supervision and use of those instruments.

There is no need to attempt to portray the relationship between personnel work of this kind and the objectives with which we began our discussion: reduction of waste in industry and loss in human happiness. Throughout our discussion of Capacities, Interests, and Opportunities, these two objectives have constantly emerged.

In the next chapter the causes of human waste in industry and of loss in human happiness are to be considered. Thereafter we shall proceed to a consideration of instruments, methods, and procedure.

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## II

### CAUSES OF WASTE IN PRODUCTION AND OF LOSS IN HUMAN HAPPINESS

The true meaning of human happiness. Factors making for human maladjustments and individual inefficiency. Various kinds of human maladjustments.

FROM the preceding chapter we are led to the conclusion that where there is faulty adjustment between the individual and his work, there is cause for inefficiency on his part; there is cause for a lessening of the productive power of the group or organization of which he is a member. We see that where this takes place there is usually a corresponding absence of satisfaction and "human happiness" on his part; there is a proportionate reduction in the sum total of human happiness in the world. These two things go hand in hand. In a very real practical sense as well as in a moral sense, efficiency cannot be achieved at the expense of happiness, nor can true happiness be achieved at the expense of efficiency. We are speaking now of happiness, not in a superficial sense as the equivalent of pleasure, but in a true sense as the expression of the satisfaction of those fundamental cravings the normal person has as a human being for achievement, for freedom from fear, for reasonable leisure, and for a sense of worthwhileness.

In this chapter and the next, therefore, we shall consider the causes of inefficiency and unhappiness resulting from the maladjustment of the worker to his work, which accrue from methods of management which have laid greater emphasis upon the work than upon the person set to perform it. With our conception of Capacities, Interests, and Opportunities in mind, consequently, let us proceed first to

the consideration of that aspect of maladjustment which is most obvious. Let us study the man who is not qualified nor interested in his work.

#### INADEQUATE SUPPLY OF LABOR

Good placement, the original creation of the well-balanced worker-in-his-work unit, (not its maintenance), is a problem which immediately breaks down into two component parts: the development of an adequate supply of the right kind of labor, and the proper selection from that labor supply of those workers who are to do certain kinds of work.

Either of these is inadequate in itself. The best labor supply ever developed must be of indifferent value if the company doesn't enjoy the means of selecting the right workers from it. Conversely, the best methods of selecting workers will lose their full measure of usefulness with respect to choosing persons for employment if the supply of labor is so inadequate that the concern must take whomever is available; but in this instance, on the other hand, they take on paramount importance in assisting the employer to make the best use of those whom it does engage. When the supply is overflowing, management's task is to procure the best 100, say, and place them where they will prove most effective and most valuable in the company's service. The employer is then apt to think of his selective methods especially with reference to choosing men for employment because—and here the mediaeval heritage grins at us—if any of them doesn't make good, he can fire them and replace them by others. Why not, the supply is overflowing? But on the other hand, when the supply is restricted and a labor shortage is upon us, management is compelled to make *the best use of those hundred men by placing them right*. In this case there is no alternative; if they don't make good, there are none available to replace them.

It is surprising how many employers do not think constructively of their labor supply beyond the point of estab-

lishing their businesses where "the labor situation is good" and beyond making things hot for someone when the needed workers are not secured. There are at least a dozen distinct methods of developing sources of labor, some applicable here, some there. Yet, with the exception of relatively few concerns, industrial concerns and business houses have no aggressive, constructive policy for the procurement of men. They rely on applicants at the gate, the source of supply incidentally which inevitably provides the floater and malingeringer and others who are undesirable. They rely on advertising, when advertising ought to be the course of action last resorted to, the method to fall back on when all else has failed. In their proper place we shall discuss the various methods of developing sources of labor supply; our purpose here is merely to point it out as one factor in inadequate procurement and placement as a source of inefficiency.

#### INADEQUATE METHODS OF SELECTION

The same comments apply equally to the *methods* used in the selection of workers from among those who are available, or, in many instances, to the lack of methods. Too often—selection is a guessing contest. It is not a guessing contest confessedly, for few employers will admit that they do not use the best judgment possible in choosing their workers. Great credit should be given to many for their intelligent, open-minded attitude toward this problem. Yet it is true that the majority think of it as a superficial function which anyone who "is a good judge of human nature" and who knows the work can do. It is true that knowledge of the work is essential, but crimes have been committed in the name of "judgment of human nature." There are many criminals among us. One is the foreman who says "let me see a man and I'll tell you if he is any good." Another is the so-called professional who has developed an attractive technique for interpreting anatomical characteristics such

as color of hair and eyes, convexity of profile, shape of chin, and so forth, into terms of mental and physical aptitude. Where a method of selection is effective, its effectiveness can be proved statistically by results, and so far no such proof has been advanced in the behalf of these methods. Trick stunts are frequently pulled on the platform which seem convincing to the uninitiated, but when the acid of statistical test is applied, the proof is found wanting.

With reference to the foreman who admits he is a good judge of men, it may be said that this is no uncommon attitude. All of us like to think we are good judges of men. We pride ourselves upon possessing this kind of judgment. Yet reliance upon judgment of this kind in personnel administration is dangerous and exceedingly costly. Such appraisals of ability are based on hunches and are as unreliable as they are unsound.

Years hence, industrial executives will recall this calm assurance that each of us is a good judge of men, and smile. At that time it will undoubtedly be recognized that the selection of men is one of the most uncertain and baffling of tasks, and that only effective procedure based on long-time research can provide reliable methods.

Here is an incident that proves the point. Arrangements were made some time ago for 13 industrial executives of major rank, each of whom prided himself on his ability in choosing men, from as many different companies, to meet and select the best salesmen from a group of 12 applicants. In doing so, each was directed to interview each of the 12 applicants privately, use whatever procedure or method he wished, then to rank them from 1 to 12 in the order of his preference.

The interesting results of this experiment are shown in Table 1. The letters A to M indicate the interviewers. The Roman numerals in the left-hand column symbolize the names of the applicants judged. The figure in each square is the rank assigned to that applicant (on the left) by that interviewer (above). In spite of the fact that these

TABLE I  
TABLE SHOWING RESULTS OF SELECTION EXPERIMENT AMONG  
13 EXECUTIVES

Applicants	Firm Rank	Median Interview	Interviewers												
			A	B	C	D	E	F	G	H	I	J	K	L	M
II	1	2	5	4	11	1	4	5	3	2	1	3	7	4	8
IV	2	4	1	1	7	3	5	9	11	4	2	3	7	5	2
I	3	1	8	8	3	4	6	1	1	1	4	3	2	7	9
III	4	3	2	8	1	2	9	2	6	12	5	6	4	1	1
VIII	5	8	6	2	2	5	1	12	10	9	6	7	6	6	7
V	6	5	3	12	6	5	8	7	5	10	3	3	1	3	2
VI	7	6	7	7	10	8	2	3	4	5	8	3	3	11	4
VII	8	7	9	3	8	11	7	4	2	3	11	9	5	2	5
XI	9	11	4	6	12	7	9	11	8	6	10	12	9	12	12
IX	10	9	11	10	4	8	2	6	12	7	7	11	12	9	6
X	11	10	12	5	5	10	11	8	7	8	9	8	11	10	10
XII	12	12	10	11	9	12	12	10	9	11	12	10	10	8	11

Correlation  
of each with  
median of  
interviewers

.50 .11 .26 .80 .34 .69 .55 .45 .82 .84 .67 .58 .47

Correlation  
of each with  
firm rank

.504 .331 .164 .885 .02 .19 .273 .334 .843 .76 .25 .40 .21

Correlation  
of firm rank  
with median  
of inter-  
viewers

.85

13 interviewers were experienced pickers of men, and in spite of the fact that they were judging the same small group of applicants, what do we find?

Glaring differences of opinion which preclude the possibility of all these gentlemen being good judges of men! Messrs. A and B, for instance, pronounced applicant IV the best man of the group, whereas Mr. G ranked him 11. Mr. K chose applicant V as the best man, but Mr. H ranked him 10 and Mr. B ranked him 12. Applicant VIII was ranked 1 by Mr. E, 10 by Mr. G, and 12 by Mr. F. The coefficients of correlation<sup>1</sup> are shown below.

The interviewers referred to in the foregoing table came from a number of different companies.

<sup>1</sup>Degree of Agreement between the rank order of two series of facts is

In the experiment the results of which are shown in Table 2, six district managers of one company were called together and instructed to select the best men from 36 individuals, to rank them in order of superiority. These managers' standards were identical, their industrial environment was the same. Each of them admitted he was a good judge of men. Yet the inconsistencies were striking.

Excellent agreement was reached on applicant IV. But Applicant I, on the other hand, was ranked all the way from 1.5 to 11, Applicant V was ranked from 3 to 28, Applicant VI from 1 to 15, Applicant XIII from 3 to 23, and so forth. If any one of these managers judged these 36 applicants, well, then 5 of them judged poorly. Yet all were "good judges of men."

As a matter of fact, the skilled employment man probably is no better judge of men than the average foreman or department head. The difference between him and the foreman is that he recognizes his limitations in this respect. Consequently he doesn't rely on his own personal judgment in hiring and placing men. He uses methods that protect him against being influenced by personal prejudices and hasty opinions. Because it is his job he can devote his time to perfecting his methods and to measuring the success of his work in terms of results. The foreman hasn't time to do so; he has "to get the work out."

Every day, management is coming to recognize that it is wasteful for the foreman to be charged with the responsibility of securing workers. In the first place, it isn't fair to him. He should no more be obliged to secure the workers than he should be required to buy raw material. It takes him away from his job, from the workers who need supervision, and it usually does so at the time when they need him most—in the mornings when the day's work is getting under

shown by the coefficient of correlation, a figure ranging from  $-1.00$  (complete disagreement) to  $+1.00$  (complete agreement) (See Thorndike, Edward L, *The Theory of Mental and Social Measurements*, for discussion of correlation.)



TABLE 2

COMBINED REPORT OF 6 DISTRICT MANAGERS AS TO ABILITY OF  
36 APPLICANTS FOR SALES POSITIONS

Applicants	Managers					
	A	B	C	D	E	F
I	5	11	2	1.5	3	2
II	8.5	11	12	3	7.5	5.5
III	6.5	18.5	25	21	15	22
IV	2	2	1	1.5	1	5.5
V	15	3	4	28	3	14.5
VI	1	11	5	9	15	3
VII	17.5	18.5	19	12	23	26
VIII	14	18.5	27	6	15	23
IX	28	11	22	11	3	9
X	19	11	16	18	15	10.5
XI	10.5	23	18	17	30	4
XII	12	30	22	35	30	14.5
XIII	3	23	12	5	15	19
XIV	4	11	6	24	23	18
XV	31	5	8	4	7.5	25
XVI	6.5	1	7	7	7.5	7
XVII	28	30	3	29	23	8
XVIII	23.5	4	9.5	32.5	23	1
XIX	16	6	20	26.5	34.5	10.5
XX	8.5	11	15	14.5	30	21
XXI	21.5	11	17	8	23	17
XXII	13	30	30	30	30	24
XXIII	35	11	14	25	15	16
XXIV	26.5	16	9.5	23	23	27
XXV	34	23	26	14.5	7.5	13
XXVI	30	23	11	10	15	12
XXVII	21.5	34	34	16	30	32
XXVIII	10.5	30	23	19	7.5	28.5
XXIX	25	18.5	21	20	15	20
XXX	28	23	29	34	7.5	28.5
XXXI	23.5	30	33	13	30	30
XXXII	17.5	30	31	22	23	31
XXXIII	33	34.5	36	32.5	15	33
XXXIV	32	26	28	26.5	34.5	36
XXXV	26.5	30	24	31	36	34
XXXVI	36	36	35	36	30	35

way. It isn't fair to the applicants for employment. They are bringing to the company a very definite something to sell, their services, and they are entitled to the most careful consideration of their wares. Except in very unusual instances the foremen are not qualified to give this consideration, nor have they the time to do so. As we have implied above, the foreman, by virtue of the trying conditions under which he must act, is not in a position to ascertain the Capacities and the Interests of the applicant and to weigh them against the Opportunities and requirements of the job to be filled. And often he hasn't the inclination to do so anyway because, not having had the opportunity to study the matter from a statistical standpoint, he puts his trust in the "look-'em-over" method.

#### THE NEED FOR PROPER INSTRUMENTS

Where the Capacities and Interests of the individual are not considered scientifically in hiring, it is almost certain that a worker-in-his-work unit will result which lacks or merely approaches the perfect balance between these three factors of Capacities, Interests, and Opportunities. It represents a weak spot in the organization, a source of actual money loss in the sense that a machine running part time is a source of actual money loss. Both are failing to attain what it is reasonable to expect from them.

A small parts metal manufacturer in the Middle West recently needed a man on his installation force, a man capable of installing electric motors and gasoline engines. A mechanic applied for the position who seemed well qualified for it. He was of good physique, very presentable in appearance and manner, and interested in the work; furthermore, he had had 10 years' experience in a local garage doing work very similar to that which he would be required to perform on the job. He was taken on the force and sent to a company training school for several months. During this time he was sent out on several jobs and fell down

badly on every one. The management was puzzled; they could not find out what was wrong. The man was anxious and uneasy; he, too, didn't know what was the matter. Some time subsequently, the company made certain experiments with trade skill tests as a means of selecting workers. In the pursuit of these experiments it was found that in spite of his previous experience and his appearance of intelligence and notwithstanding his 10 years' experience, this man had only an apprentice knowledge of gas engines and electric motors.

#### ABSENCE OF REQUISITE CAPACITY IN THE WORKER

This instance illustrates the case of a worker-in-his-work unit in which the factor of Capacity was lacking in large degree in spite of appearances to the contrary. He was interested in the work and ambitious to make good. The job certainly contained ample opportunity for the exercise of the right kind of abilities. But instead of the creation of a well-balanced worker-in-his-work unit, a unit was created which, if we use the same technique as that used in the last chapter, can be expressed by the graph shown in Figure 2.

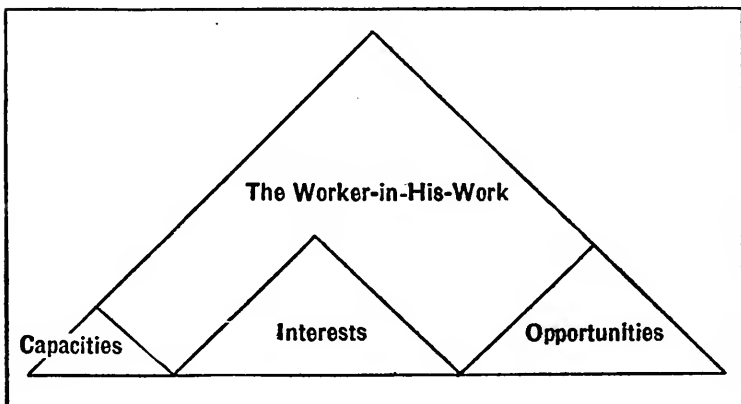


Figure 2: Graph showing the relation between Capacities, Interests, and Opportunities, illustrating the absence of requisite Capacity in the worker

In this instance, management, through lack of adequate instruments of selection, had unknowingly created a worker-in-his-work unit in which the work was done badly, costly mistakes were made involving the loss of good-will among the company's customers, and the man, himself, was caused much mental suffering.

This is a rather crude example. Striking instances are always chosen to illustrate a point. Yet it is no more crude than thousands of daily occurrences. Throughout the length and breadth of the land, men and women are being employed and set at tasks for which they are not qualified or for which they are only partly qualified. And the cost in production to industry and the cost in happiness to themselves is a total defying estimate.

#### ABSENCE OF OPPORTUNITY IN THE WORK

Take another instance: a bright-looking boy applied to one of the big department stores in the East for a position in the foreign trade department where he could use his French-speaking ability. There was no vacancy at the moment in this department so he was given a position as stock boy. And then, through oversight, he was forgotten—in the sense that he could speak French and wanted a job in the foreign trade department.

Here was an instance in which the Capacity was there and the Interest, but not the Opportunity. Through an instance of carelessness that most employers would not admit could occur in their establishments, a worker-in-his-work unit was created which similarly showed a lack of balance between these three fundamental factors. Graphed, it appears in Figure 3.

When six months failed to bring this boy the opportunity he wanted, he quit and sought a position in the foreign trade department in another big store, across the street. He was employed in that department and today he has made good and occupies an important executive position. The first

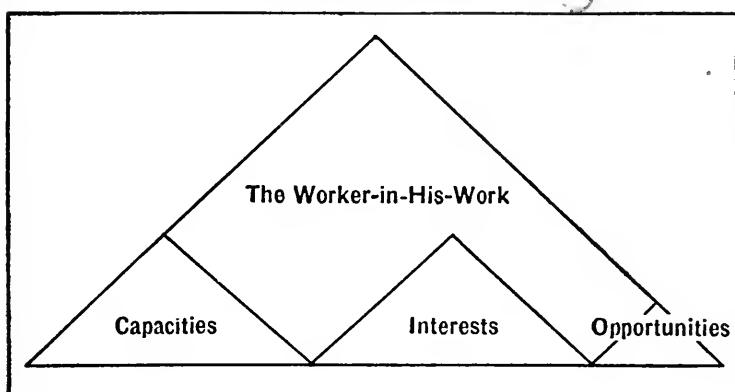


Figure 3: Graph illustrating the relation between Capacities, Interests, and Opportunities when an absence of Opportunity in the work exists

store, although possessing an organized personnel department, permitted a capable worker to be wasted and, through negligence, contributed directly to its own labor turnover.

Another instance of faulty selection and placement is that revealed in the error of not considering the Interests and motives of the individual. Every manager knows of persons in his organization who are on good jobs and who apparently possess the necessary abilities to fill them but who don't seem to make any progress. Apparently they lack the divine spark. And they do indeed, for, probably, what they lack is interest in that particular work. The driving force of Interest is not there. Why?

If we may adopt a crude simile, let us think of a locomotive with its boiler, firebox, cylinders, and pistons as an illustration of Capacities. All these various parts it can put to work in the manufacture of such things as power and mileage, provided the fire and steam pressure are there too. But a locomotive without fire in its firebox and without steam in its boiler is not a very useful locomotive. Give it these and it becomes a thing of life and energy.

Surely we men and women are much like this. We are equipped with brains, eyes, arms, and legs—"parts" we can

put to work in the manufacture of anything under the sun. But they are of relatively little use unless they are quickened and brought to life by the fire and steam of interest.

"All rubbish," says the old-timer. "A man who isn't interested in his work is no good; get rid of him." This is such an easy thing to say when one is sitting in a comfortable executive chair at a creative job crowded with interest. But ask Mr. Executive to go out in the office and address envelopes by hand all day or go out in the shop and count cotter pins; perhaps then he will have some small sympathy with the worker who is engaged in work in which he is not interested. Maybe he will steal a glance at the clock himself.

As a matter of fact, individuals differ in degree and kinds of Interests in as great a measure as they do in Capacity. We have already spoken of the many different kinds of Interest, those conscious desires to engage in this or that particular work, mathematical, non-mathematical, varied, non-varied, outdoors, indoors, selling, anything-but-selling. We have spoken of conscious ambitions, to win promotion to this higher position, to that, to become qualified for this line of endeavor, for that kind of professional or business pursuit. We have referred to those ambitions which have to do with the individual's family and personal life. We have made reference to those hidden motives, those unconscious instincts, those subterranean attractions and repulsions of which we know so little as yet and yet which exercise such a tremendous influence upon the effectiveness of each of us in his work.

#### THE ABSENCE OF INTEREST

It is a common failing on the part of most of us to attribute to others the desires which actuate ourselves. It is hard for most of us to sympathize with those desires and interests of others which we ourselves do not share. Let us take an instance: most, or all of those into whose hand this book falls have both conscious and unconscious ambition to pro-

gress, to win advancement, to get ahead in the world. It is almost impossible for us to understand and sympathize with a person who lacks that kind of ambition. Yet it is true that many of the workers in the steel mills, for instance, have no desire to get ahead in this sense. They do not want to become foremen. They do not want the responsibility of supervising others. What they do want is security and continuity of employment, good wages and reasonable leisure.<sup>1</sup> Of course, between themselves, there are also wide differences in desire within this range, but we are speaking now of the difference in viewpoint between you, the readers of this book, and certain of the men in the steel mills. Be fair. Do you not have to exercise a little conscious effort to appreciate their attitude in this respect? And yet, do you not appreciate how hampered you would be in placing men and in supervising them if you assumed that all men are ambitious for advancement to positions of responsibility?

If, for instance, we choose for a position which should lead up to a position as foreman a man who has no desire for that promotion, we should be depriving ourselves of the economic advantage in that worker-in-his-work unit of that great incentive, the incentive to get ahead, which another man may have in large degree.

Industry as a whole knows little of human interests. We do not know how to discover them and the need for doing so has not generally become apparent to us. Nor do we know how to harness a man's interests to his work, at least in the measure in which future generations are going to know how to do it. Yet we are making brave beginnings. And the experienced employment manager is beginning to recognize that as a man's interests are, so, largely, is he and that Interests are a factor which we must consider to the best of our limited ability if we are to create effective worker-in-his-work units in our industrial and commercial organizations. This calls for patience and for untiring study, qualities again which the foreman is not in a position

<sup>1</sup>Whiting Williams.

to exercise because he has not the time nor the equipment to do so. If we draw our graph again, modified to show a worker who possesses the necessary Capacities assigned to a job which contains the necessary Opportunities for the exercise of those Capacities, but who lacks the Interests which will impel him to exercise them most fully in its performance, it will appear as in Figure 4.

The results of such a maladjustment as this are obvious. The work will be done indifferently. Output and quality will be low. There will be inefficiency due, not to inability but to inertia. The cost of getting that work done will be high.

Such a maladjustment will bear its fruits in dissatisfaction as well as in inefficiency. No demonstration is needed to show that a worker who is not interested in his work almost inevitably IS interested in thinking, and looking else-

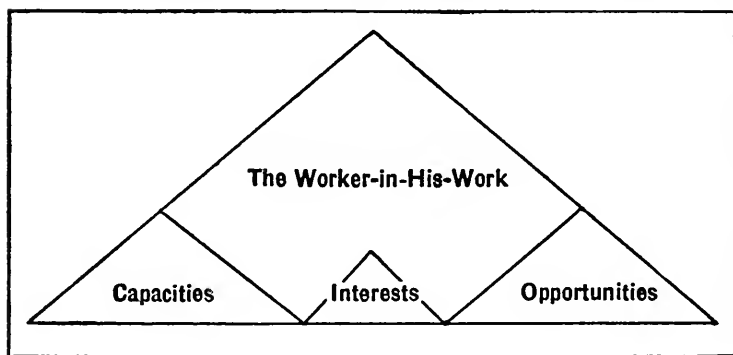


Figure 4: Graph showing the relation between Capacities, Interests, and Opportunities when an absence of Interests exists

where for work which does appeal to him. In short, while the worker is present in body he is absent, at least partly, in mind. He is in absentia on the job. And the cost of this kind of absenteeism is beyond our ability to figure it.

Physical absenteeism is usually compensated for, fractionally, by a corresponding reduction in the amount paid out in wages. There is no such reduction in the case of



absenteeism on the job. It saps and drains continuously, day in and day out, from production and profit.

#### INADEQUATE TRAINING

We have now considered the industrial and social losses which accrue from poor selection and poor placement. Let us turn our attention for a while to the matter of inadequate training—and let us interpret training broadly.

Every worker brings to the job with him a certain amount of potentiality, of capacity for growth. His value to his employer lies not only in what he is, but also in what he may become. If he is gifted with that unusual quality of clear foresight and ability of self-analysis, he will go far along in the attainment of those potentialities. But most of us are ordinary human beings with the ordinary human being's limitations and we struggle along unintelligently, doing the work at hand as best we may, puzzling over the difficulties we encounter. Even those of us who have had educational advantages are subject to this confusion in thinking; we need guidance in the first place and help in the second.

Personnel management has made great strides in the field of training workers. Management's great opportunity and responsibility in this respect have been generally appreciated and many different plans are in effect which are designed to bring the workers to greater and greater personal effectiveness in their work through carefully-thought-out methods of instruction.

The old-time practice was to hire the worker, put him on the job with an experienced worker and let him paddle his own canoe. Instruction was not thought of except in the most casual terms. The idea of conscious thought along the lines of developing the worker to his greatest effectiveness had not occurred to us.

It soon became evident, however, that special help during the early days of a new employee's engagement qualified him for effective service far more quickly than when he was left

to his own devices. Accordingly, the foreman came more and more to pay attention to his new men and this practice was good, but it was costly, for the foreman's efforts were thereby diverted from his major duties. Certain old employees were then given the task of breaking in the newcomers and this worked still better, for they could give more patient, consistent instruction than could the foreman.

Other developments, however, have taken place since then. Creative thought has been given to methods of instruction. The training department is now a recognized part of many industrial and business institutions. The vestibule school, frequently, is the first environment the new employee knows. Advanced training courses are made available for those who want to take them and who, in the judgment of the employer, are qualified. Management no longer insists upon a close, immediate cause-and-effect relationship between the employee's course of training and the work he is engaged on at that time, or even the work to which he has reasonable assurance of being transferred or promoted. Industry is appreciative of the fact that insistence upon such a narrow interpretation of the purposes of training is apt to defeat the larger purposes of educational effort along these lines, that training has advanced from something of value in increasing the effectiveness of the worker in his immediate work to something of value in increasing the effectiveness of the worker as a man generally, as a member of the organization generally, and as someone upon whom sometime (although in ways perhaps not now obvious) greater and greater responsibilities will probably be laid.

In fact, the development of men is now regarded as more than a production problem, great as its significance is in this respect. There is involved also a moral consideration. It is becoming more and more a matter of questionable business ethics to rely for trained men solely upon the supply made available by bidding them away from the concerns which have trained them. The unfairness of this practice

is obvious and needs no comment here. Business generally is built on fair practice. The unfair competitor usually suffers in the end through those intangible compensations of good-will, prestige, and reputation which eventually express themselves in concrete results. So the idea is constantly gaining weight that every employer has a definite obligation to industry as a whole and to himself and his men in particular to formulate the policy of helping his men develop their effectiveness by adequate training.

Where a concern is not appreciative of this responsibility and this opportunity, it is apt to be subject to severe disadvantage in the development of its worker-in-his-work units. Where it is possible to increase the contribution the worker is able to bring to his job, in that measure it is possible to increase the effectiveness of the worker-in-his-work unit. In that measure the quantity and quality of the work done by that man-job unit will be increased and the cost of getting that work done reduced.

#### ABSENCE OF OPPORTUNITY FOR SELF-EXPRESSION

We have discussed, so far, the negative effects of faulty selection and placement and of inadequate training methods upon waste in production and upon human happiness. In doing so, we have, as it were, created the worker-in-his-work unit and we have then proceeded to increase its effectiveness by increasing, through training, the Capacities which the worker contributes to it. Let us assume, therefore, for purposes of further discussion, that we have brought it to a relatively high state of development; then we are brought face to face with a third cause of waste and unhappiness which can best be expressed by the failure to provide adequate Opportunity.

We have defined Opportunity in the last chapter as the opportunity to make use of the abilities with which, by inheritance, environment, or experience, the individual is endowed. It implies opportunity for self-expression, for the

satisfaction of such creative instincts as he may possess, for such growth as he craves, for the fulfilment so far as possible of those desires and ambitions which move him.

To a certain type of employer this statement will make no appeal. This employer asserts that if a man is any good and has any guts, he will make his opportunity, he'll get to do the things he wants to do, he'll get ahead. All of which is probably true. And all of which is indicative of a feeble grasp of human nature.

For all men are not superior men; they are not all endowed with iron abdominal investitures. Fortunately or unfortunately men are MEN and, for the most part, they have quite as many and as marked weaknesses and flaws as they have sinews and merits. Why attempt to evade facts by regarding the exceptional man as the average?

Industry must utilize the services of men of all types, not of one superlative type. It must use, as best they may be used, the services of men lacking great strength, of men lacking superior judgment, of men lacking initiative, planning ability, special knowledge, tact—a hundred and one different qualities. It must use the services of men who lack the ability to sell their own abilities. What shall be its course? Shall it throw them all into a common pool and say, "Sink or Swim?"

Of course we do not anticipate an affirmative answer. It was an oratorical question—see *Elements of Elocution*. The commodity conception of labor might reply affirmatively, but industry is getting away from the commodity conception of labor. And it is recognizing that as we must consider the Capacities and Interests of people at work, so we must consider the Opportunities for them to satisfy those Capacities and Interests. Consequently let us now give our attention to two primary phases of Opportunity—the opportunity for self-expression and the opportunity for advancement.

Everyone of us is stamped with an individuality of his own. In whatever we think, in whatever we do, that individuality is revealed. It demands the opportunity of ex-

pression. If you are a good tennis player and enjoy tennis, you will probably play tennis. If you are a lawyer and enjoy the practice of law, you probably will practice it. If you are a good machinist and enjoy the great possibilities for real creative effort which that trade opens up to you, you will undoubtedly follow it. That is, you will play tennis and practice law and work in a machine shop if you have the opportunity to do so. In such ways do men express their individualities.

Now it is true that most men possess, in greater or less degree, that inside urge which, for want of a better term, we call creative instinct. They demand more than the chance to earn a living. They demand the chance to do something useful. The man who asserts with disarming frankness that he'll do anything that will make money, is kidding himself. Set him to work at a salary of ten thousand dollars a year piling a thousand bricks into a pile ten by ten by ten, then tearing it down brick by brick and building another pile just like it, ad infinitum, and see how long he'll stick by his job. Or recall the authentic case of the carpenter who, after war was declared, left a steady job to earn a fancy wage at the nearby naval proving grounds. Within two weeks he was back applying for his old job. In response to his former employer's question, he said, "I'm through! Put in two weeks building a target on a raft and the next day they towed it out to sea and shot it all to pieces."<sup>1</sup>

In the degree in which an industrial organization gives intelligent thought to furnishing its workers the opportunity for creative effort, or more broadly for self-expression, in that degree it will tend to harness to production one of the most potent influences of all. Man has not lost the old pride of workmanship which prevailed in the days of the Trade Guilds in spite of the tendency of modern standardization and modern group production to crush it. And where management is capable of striking that happy balance be-

<sup>1</sup>John Calder.

tween efficient processing and the efficient utilization of human instincts of workmanship, there it will have solved a great part of the problem of continuous, year-in-year-out efficient production.

It is not our purpose here to discuss the instruments used nor the practices followed in achieving these results. We desire simply to point out the problem in order that, as we proceed later to consider the ways and means of personnel practice, we can do so with a better grasp of the relationship between those practices and the underlying principles on which the creation of efficient worker-in-his-work units are brought about.

#### LACK OF OPPORTUNITY FOR ADVANCEMENT

In bringing this chapter to a close we desire to correct any misapprehension we may have created by our reference to the men in the steel mills. Mr. Whiting Williams has pointed out that certain of these men are not ambitious for the responsibilities of foremanship, but this is by no means characteristic of all men and women. Most people are ambitious. They want to get ahead. In this instinctive desire for progress a great force lies, which, if properly recognized and harnessed, adds greatly to the "man-power" of each individual and of every group of workers.

This opportunity for advancement must be definite, real, concrete—not a vague hope. A clear-cut promotional policy is now recognized as an essential part of any effective personnel control. Employees are not usually satisfied with casual statements such as "there is always room at the top" and "if a man is any good he'll get ahead." They demand evidence of a definite policy in this respect. When such evidence is furnished, positive results in increased application and increased efficiency inevitably ensue.

In any concern, the promotional policy should be clear-cut and easily understood. It should trace the avenues of promotion up through the organization in such a way that

every employee may see the opportunities opening up before him and inform himself of the experience or special training he should acquire to merit promotion. The means should be made available to him to acquire this training, and sound counsel should be granted him personally in making his plans to follow up these advantages.

As implied in the previous chapter, the successful execution of any promotional policy involves thorough knowledge of the Capacities and Interests of the workers and of the Opportunities in the work throughout the organization.

Where such a thought out, consciously adopted policy is lacking, we may look for mediocrity of effort, for lack of interest. There will be a constant tendency for those persons capable of superior effort and actuated by keen interest, to seek opportunity elsewhere. Those who remain will lack one of the most powerful incentives to do their best. In fact, the absence of such a policy is doubtless responsible for the sinking of unknown numbers of men and women of high potentiality into a state of passive acceptance of their present work and environment as their proper sphere.

Here we see the direct causal relationship between the lack of opportunity to advance and a lessening in interest, and the consequent weakening of the effectiveness of the worker-in-his-work unit.

Not only does the absence of a concrete promotional policy affect present production injuriously, but it tends to prevent the wholesome development of workers to greater power of achievement. No mathematical formula will reveal to us the loss in production and the cost in human happiness caused by our failure to appreciate this truth earlier and to grapple with the difficulties that surround its fulfilment.

The ways of doing so are not obscure. Industry is constantly improving its technique of personnel administration and, as we shall point out later, the ways and means of controlling and developing opportunity for advancement as a factor in industrial management are at hand.

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### III

## CAUSES OF WASTE IN PRODUCTION AND OF LOSS IN HUMAN HAPPINESS (*Continued*)

Various kinds of human maladjustment. The "distance" between employer and employee. The need for proper instruments of control. The performance-reward tie-up. Significance of labor turnover.

WORKING conditions obviously exercise a very marked effect upon workers. We are all responsive to the conditions under which we work as we are to any environment in which we find ourselves placed. Certain sets of working conditions undoubtedly make for human efficiency. Other sets of working conditions undoubtedly make for inefficiency.

### EFFECT OF WORKING CONDITIONS ON CAPACITY

Let us interpret the term "working conditions" broadly, not as the equivalent of any one particular phase of environment. The phrase "working conditions" is a general expression of all those influences which surround the worker in his work and which affect him favorably or unfavorably in its performance. Because we are dealing with a factor, however, which has so many aspects, let us break it down for purposes of discussion into physical working conditions and mental working conditions. Of these the simplest and most easily comprehended by far are the physical working conditions.

Here the cause-and-effect relationship between the conditions under which the work is performed and the quality (and quantity) of the work done is obvious. Especially is this true of physical working conditions with respect to

their effect on the *Capacities* of the workers. Here it resolves itself into a matter of almost mechanical simplicity.

One of the first things the industrial engineer will observe upon entering a plant or office is the quality, volume, and direction of the light by which the workers perform their tasks. Poor light is a direct cause of poor workmanship, and continued eye-strain resulting from poor light is a certain cause of lessened ability on the part of the worker. Engineers are able to determine accurately the amount of illumination needed in a certain workroom if maximum productiveness is not to be impaired, if maximum efficiency of the workers is to be maintained. Yet, if you visit many plants, you will observe how this important factor of light is at times overlooked—here in the case of certain groups of workers, there in the case of an individual employee. The visitor from outside is frequently more apt to observe these instances than the managers within, who become so accustomed to conditions as they are that such conditions seem normal to them and consequently they fail to observe instances of faulty illumination which an outsider will notice at once. Unfortunately, visitors from the outside usually feel a sense of embarrassment in commenting critically upon the things they see and so refrain from doing so. Were all visitors outspoken and if all employers and managers were open-minded, there would be fewer instances of bad lighting.

Ventilation is another factor the industrial engineer will observe. It is not necessary for a book of this kind to trace the physiological reasons for the effect of hot and close rooms and of air charged with carbon dioxide upon the mental processes of persons at work and consequently upon their physical efforts. Here is another instance in which improper physical working conditions impair the capacities of the workers. Where modern equipment is not installed for the regulation of ventilation, other difficulties of a different nature are apt to be aroused, for it seems at times as if all mankind were divided into two classes: those who want

the windows open and those who want them closed. The consequence is a wear and tear on the window cords and pulleys for which they were never designed. In modern buildings devoted to office and factory work, ventilation is usually controlled mechanically. A steady process of exhaustion and replacement of air takes place and the incoming air is passed through a sheet of water removing dust and impurities, then heated to the proper degree of temperature.

It is apparent that where the ventilation is poor, there are good, sound physiological reasons for drowsiness and inertia. And where drowsiness and inertia sap the productive energies of the workers, it is not reasonable to look for high efficiency.

#### THE NEED FOR ACCIDENT PREVENTION

Again, take the consideration of safety. Here again the cause-and-effect relationship between good physical working conditions and production is obvious. Good safety work is largely a matter of education in carefulness, but any campaign of safety which relies solely on safety-education and does not offer physical protection against accident as well, is apt to fall short of its objectives. Every accident does more than incapacitate the employee who is the unfortunate victim, thus destroying for a short time or permanently his ability to contribute to the output of the organization. It exerts a depressing influence upon the other workers as well. For the lack of adequate safety equipment makes necessary a correspondingly greater degree of personal care to avoid accidents, and where the worker's attention is diverted, even in part, to the avoidance of accidents, it is diverted from the primary purpose of getting his work done. Thus his Capacities are lessened because attention is diverted.

This brings us to another thought in this connection. We have mentioned these obvious instances to illustrate the physical effect of poor working conditions upon the Capac-

ities of the workers-in-their-work, but we are now at the point where it is necessary to recognize the mental effect of poor physical working conditions upon the Interests, or motives, of the workers-in-their-work. For where Interests are lessened, just as where Capacities are lessened, the effectiveness of the worker-in-his-work is undermined.

In this connection we must bear in mind that the word Interests is to be interpreted liberally as those motives, subconscious as well as conscious, which unleash and stimulate our Capacities. Such Interests are seriously crippled where dissatisfaction or repugnance arises from unwholesome physical working conditions. Lack of order, lack of cleanliness, gloominess, unwholesome sanitary conditions, these inevitably exert a depressing influence of which the individual is sometimes conscious and of which he is sometimes unaware. It takes a very unseeing executive to fail to appreciate this truth; here is one instance where an intangible factor is apparent to the executive who usually is conscious only of those things of a physical nature which he can see and measure.

But our understanding of working conditions would be very inadequate if we thought of them only as those physical surroundings which offer the employee his working environment. There are working conditions that are abstract and intangible, yet which exercise a tremendous effect upon the mind of the worker. In the same manner in which poor lighting, poor ventilation, disorder, and uncleanness undermine the effectiveness of the workers-in-their-work through impairing *Capacities* and *Interests*, just so do these other intangible working conditions of friction, supervision, and so forth, undermine the effectiveness of the workers-in-their-work, principally through impairing *Interests*. They lessen the steam pressure.

#### THE "DISTANCE" BETWEEN MANAGEMENT AND MEN

Most companies have conscious policies of personnel administration. They believe in "the square deal," even

though they may interpret it in various ways. They believe in providing opportunity for advancement. They believe in cultivating morale and *esprit de corps*. But frequently we find management is far removed from the worker in the worker's mind. The men at the head of the company may congratulate themselves on their right-little, tight-little organization, and on its being a regular family group; yet, at the same time, the workers down the line may be conscious of barriers to mutual understanding, aware of administrative policies gone awry in execution which are entirely unknown to the officers and higher management. The wish is often father to the thought. Frequently management believes in a certain policy (e. g. promotion strictly according to qualification, interest, and merit of performance) and, thereupon, *ipso facto*, believes it is really in effect. Often, in spite of this confidence on management's part, the policy exists only in contemplation and is not in executive effect at all.

We find, indeed, that because of this failure on the part of the higher executives to appreciate the workers' reactions, wholesome policies consciously adopted in the president's office are frequently inoperative as far as the individual worker in the ranks is concerned. And even where they are operative, misunderstanding of their nature and purposes on the part of the worker frequently destroys their usefulness; unless such policy, wholesome in itself, is faithfully and truly interpreted to the workers, their reaction is apt to be negative.

Where this is so, there is a lack of mutual understanding, and consequently a lack of mutual sympathy. The worker, for instance, fails to see the tie-up between good work on his part and advancement in the organization. His efforts are not given entirely to doing the best work he is capable of doing; they are cloyed and vitiated by a sense of futility. The conscious policy of the management that the worker shall be rewarded according to the quality of his performance does not awaken the intention of the worker to do his best.

Here is an environment, a "working condition," of discouragement. Here is a breeding swamp of friction. As far as the worker can see, his interests are not tied up with those of the company; rather they seem to be opposed. The question in his mind is not "How much can I do?" "How can I increase my value as a member of the organization?" Instead it is summed up in the familiar "What's the use of trying?"

Where a lack of complete understanding and sympathy exists, the worker's thought instinctively flows into channels of self-protection and even retaliation. His interest wears thin and the worker-in-his-work unit, of which he is a part, loses proper balance and so loses effectiveness because the factor of Interest shrinks, as against the factors of Capacity and Opportunity.

#### THE EFFECT OF WORRY

In the measure in which the employee begins to think of himself and his interests as something apart from his company and his company's interests, in that measure is his effectiveness in his work reduced.

Let us, too, consider the matter of worry. As long as the world revolves, we will have worry with us, a phantom which leans over our desks by day and stands at the head of our beds by night. In its acute forms it becomes fear, and fear is paralyzing to efficiency because fear and interest cannot reside together in the same person. In its less acute forms, it acts as a drag, not necessarily rendering us impotent, but making our tasks much more difficult than would otherwise be the case.

There are many kinds of worry. Most persons have worries at home, big worries, or small ones. Few are free from financial worries. These ogres are difficult to overcome. Sometimes the employee sees no way out, and while he would welcome advice and assistance, he hesitates to ask for it, and management, perhaps through not knowing

about the ogre at all, fails to offer aid. It feels, too, at times that the employee may resent "interference" with his private affairs, that he may feel "it is none of its business."

Yet what a great opportunity lies in cooperation with those employees who are face to face with personal difficulties. In the degree in which management, through sensible personal service, is able to help its employees drive away such phantoms, in that degree can management contribute to the effectiveness of those employees and to their own happiness.

Perhaps the most common worry is the fear of losing one's job. It is remarkable how high up in an organization this particular worry worms its way. The dread of want, of dependence, of failure, exists where there is apparently no reason whatever for it. Even high executives and officers in an organization share it in greater or less extent. The fact that it is usually groundless may make it illogical, but does not prevent it from casting a shadow on the efficiency of the persons who entertain it.

Here is another intangible influence, this time one which the hard-boiled executive is not so apt to recognize. He is apt to think in terms of the foreman we referred to, who in the old days used the threat of discharge as an instrument of cultivating assiduousness of effort. Yet the more advanced employers recognize it, appreciate it in its full significance, and their policy is to develop in their workers a feeling of security in their positions, a sense of confidence in the permanence of their employment. For in the extent to which fear of losing one's job is permitted to permeate an organization, true efficiency is certain in the long run to suffer. Great bustle and appearance of activity may be the immediate result of such fear, but production and effectiveness of effort are certain to lag.

We have spoken of the square deal. You will travel a long way to find an employer who doesn't believe in it, but you won't have to go a hundred yards to find two who interpret it differently. In using the terms, one will have

wages in mind, another hours of labor, another working conditions, another opportunity for promotion, another social activities, another medical service. And with respect to each, you will probably find nine different opinions in every group of ten men.

#### THE INFLUENCE OF MISUNDERSTANDING

As a matter of fact, the square deal is something which enters into all phases of the relationship between management and labor, on labor's part as well as on management's. Where it is lacking, dissatisfaction inevitably arises and then comes friction with its train of evil consequences.

For one reason or another it appears frequently and sometimes in most unexpected places. Sometimes it is the result of selfishness on the part of the employer, or on the part of the employees. Sometimes it is the result of sheer stupidity in permitting phantom differences of opinion to look like real differences of opinion, or in insisting upon superficial technicalities, or in failing to recognize that the other fellow's opinion is something which is probably as good and as worthy of consideration as one's own. Frequently, sources of irritation of these kinds produce antagonistic states of mind out of all proportion to their importance, which in turn exercise a depressing effect on production.

A young man, for instance, recently fell heir to a farm—and with it an ancient feud with one of the neighboring farmers. Believing in a policy of frankness and fact, he went to see his friend, the enemy, and asked him for his version of the controversy. "I maintain," said his neighbor, belligerently, "that your fence is three feet over the line on my property." The young man breathed a sigh of relief. "Is that all?" he replied. "Well, tomorrow morning take your men out there and move it over six feet." The belligerent gleam died away. "I will not," replied the ex-enemy, "I was only standing on the principle of the thing."

How seldom do we exercise such simple common sense as



this. To be sure, there will be some who would condemn such open-mindedness as a fruitful source of trouble. Everyone would "impose" on them. It is this fear of being imposed upon that prevents us from meeting the other fellow half-way. It is the same fear that prevents the other fellow from meeting us half-way. And so we do not meet and our differences continue.

In the industrial field, this fear of being imposed on causes more friction between management and men than can be estimated. The responsibility here rests directly upon management. Those who comprise the management class in industry usually have had better opportunities and usually have better abilities, than their fellow workers; that's why they are managers. Because they have better opportunities and possess better abilities they are inherently invested with the responsibilities that go with leadership, among them, that of assuming the initiative in getting together, of going more than half-way to get the other fellow's point of view.

It is folly not to recognize these obligations of leadership. For friction, arising from whatever cause, diverts men's minds and efforts from productive effort to thoughts of self-justification and self-protection, and their output is proportionately cut down. The Interest factor in the worker-in-his-work situation is here repressed.

But there is another phase of mental "working conditions" which can be an instrument for increased production and efficiency or for decreased production and efficiency (according to how it is developed) than either worry or friction. It is intricately interwoven with both of these, in fact, yet deserves separate consideration. We refer to the matter of supervision.

#### THE EFFECTS OF RIGHT AND WRONG SUPERVISION

Supervision is an all-important phase of what we are designating by working conditions. The foreman and the

executive exercise a tremendous influence upon production and human efficiency, far greater than is appreciated in many companies. In recent years the importance of the foreman as an administrator of men, as well as a director of operation, has been recognized in greater and greater degree. It has become more and more appreciated that he is the key-man.

From the point of view of good organization, his powers should be preserved. Interference with the foreman (or the executive) in the control of his department should be avoided, but freedom from direct interference should be granted only where and if the foreman has been selected with due consideration to his ability to exercise independent control wisely. If he is not able, after proper training, to exercise wisdom and common sense in his control of his department, the proper course of action on the part of the management is obvious.

The reason the foreman is the key-man is this: that regardless of what the administrative policies of the company may be, regardless of the extent to which the foreman properly interprets those policies, the man on the job looks up to him as THE MANAGEMENT. In the mind of the worker, the management is fair or unfair in the degree in which his foreman is fair or unfair, intelligent or stupid as the foreman is intelligent or stupid, helpful and friendly as the foreman himself is helpful and friendly. The foreman has it in his power thus to modify the company's attitude toward its workers and consequently to formulate the workers' attitude toward the company.

He has it in his power to formulate their attitude toward their work. The time is passing when he was thought of primarily as a "disciplinarian," or as the man in charge of the scheduling and processing of the work. As a matter of fact, scheduling and processing is now frequently a staff function; the foreman has little to do with it. He retains the power of discipline. He should retain the power of discipline. But he should interpret it much more broadly than he has customarily done heretofore.

For he should understand men. He should recognize their human qualities as well as their mechanical, or physical, powers. He should be capable of analyzing the reasons for an individual's failure to produce efficiently and be able to apply common-sense remedies rather than having immediate recourse to the ancient practice of firing-and-hiring. He should be a wise lawmaker, as far as his prerogatives go, a fair judge, a capable executive. He should have those qualities of organizing ability, resourcefulness, and initiative which have to do so largely with the mechanics of his job. But he should be capable of arousing departmental and company loyalty and interest, of creating an atmosphere of mutual helpfulness free from petty annoyances. He should, in short, exercise the qualities of leadership.

Take a group of average men and an inefficient foreman will destroy their efficiency. Interest will be lacking, friction ever-present, labor turnover high, and production low. Take the same group of men and give them a foreman who, in addition to "knowing the work," is a good leader of men, and you will have satisfaction, stability, efficiency, and high productiveness. It is a fact in military life that, other things equal, the fighting effectiveness of a unit depends directly upon the quality of leadership exhibited by the commanding officers. It is equally true in industrial life.

Faulty foremanship exercises a negative influence upon the Capacities of the workers-in-their-work because of the probability that the capacities the workers bring with them to their work are not being effectively used. It exercises a negative influence upon their Interests because it does nothing to stimulate them, to inspire them, to lead them on and on to greater heights. In the measure in which it negatives Capacities and Interests, in that measure is it a source of lessened productiveness and of lowered morale.

It is impossible to treat of the causes for waste as so many distinct and different things. They are all interrelated. All we can do is to approach some degree of order in our thinking. In the attempt to attain this sense of order we have discussed working conditions in its physical sense and in

its mental sense. What we propose to consider now is closely related to the latter, yet its importance seems to warrant our giving it separate attention. We refer to incentive and the lack of it.

#### LACK OF INCENTIVE

The effectiveness of the worker-in-his-work is affected, as we know, by the degree to which the factor of Interest exists in it. In turn, Interest, the composite of all those influences which motivate the worker, is stimulated by incentives of various kinds. It is to incentive we wish now to direct your thought.

There are many different kinds of incentive. Instinctively we think of some method of compensating increased output by increase in pay, some monetary reward immediately tied in with the performance of the work. Piece-work, task and bonus, and so forth, are instances of these kinds of incentives, and when properly applied, they are valuable agencies in stimulating and promoting individual production. Methods of this kind, it is true, have their backwashes. Failure to win the reward sometimes causes resentment and dissatisfaction. But when a plan of tying-in compensation with performance is simple (so that it can be readily understood), practicable (so that the reward is well within reach), and fair (so that an equitable proportion of the saving goes to the worker), the results are usually good.

There are other incentives, of a non-financial nature, which also exert a profound influence upon the interests and consequently upon the effectiveness of the workers-in-their-work. We have already spoken of the effect of promotional policies upon employees: of the ways and means we shall treat later. But there is one specific incentive which is fundamental and far-reaching and which is intimately related with the concept of the Capacities, Interests, and Opportunities of the worker-in-his-work. Where it exists, interest inevitably runs high. Where it is lacking, interest

inevitably is at low ebb regardless of such temporary or more immediate incentives which may be in operation. We have reference to the *certainty* on the part of the worker that the management KNOWS his Capacities (what they actually are rather than what they may seem to be), that the management KNOWS his Interests, that management KNOWS the quality and quantity of his individual performance, and that better things await him strictly in accordance with that knowledge on management's part. Here is an absence of that fear that he may be overlooked, that he may be judged unfairly, that his career may be handicapped through the bias of his immediate superior or through his own inability to sell himself. Here is perfect confidence that he has his own future in his own hands, that it will be a thing of his own making and of that alone.

In this direct connection between performance and reward lies the most constant, inspiring incentive of all. This is the kind of incentive which permeates the individual's life as an employee rather than stimulating him in one particular phase of his employment. Instead of merely encouraging him to get out more units per hour (perhaps at the cost of quality), or sell more merchandise (perhaps at the cost of good-will), this fundamental sort of incentive encourages him to take an interest in his work, to study out better ways of doing things, to forget the clock on the far wall, to maintain friendly relations with his fellow workers. It encourages him to "stay put," for here, surely, is opportunity; here a man's merits are known and he is rewarded accordingly.

#### DIFFICULTY OF ESTABLISHING THE PERFORMANCE AND REWARD TIE-UP

It is an interesting fact that few companies will admit that they have not such a plan actually in operation, regardless of the fact that it takes a rather elaborate technique to make it workable. For it is quite impossible by taking

thought for a company to make such a plan a working part of its administration. Carefully thought-out methods and instruments are necessary. The procedure based on such methods and instruments must be studiously devised. The whole must be sold to the employees.

The general statement on the part of the management of a concern that advancement in salary and promotion in responsibility are based solely upon performance and merit, will not provide this basic incentive. The employees demand more than a simple statement of policy. They demand evidence not only of the management's intention to promote solely on merit, but evidence of management's ability to do so as well.

The evidence of good faith in making such a statement is furnished in the existence of a well-organized personnel department functioning effectively and making use of adequate methods. In the early stages of industrial development such methods were not as essential as they are today. There was a close personal relationship between the employer and each of his men. The Capacities and Interests of each were known, not, in those days, as the result of adequate personnel methods and records, but as a result of personal intimacy.

Nowadays, however, in concerns numbering hundreds and thousands of persons, that old-time degree of intimacy cannot exist. It is as impossible to know the Capacities and Interests of the employees in such an organization by the "intimacy" method as it is to carry on any of the aspects of management by the same rule-of-thumb technique that was good practice when they were small organizations. The employer has attempted to multiply himself by the appointment of subordinate executives and by the delegating of authority, but this has interposed a gap between him and his men, and his knowledge of them, their Capacities, and Interests has become necessarily vicarious and, consequently, inexact.

In most large organizations, as a result, there had de-

veloped a feeling on the part of the employees down the line that they were not known save to their immediate superiors and that whether they were to progress or not depended largely upon the good-will of their immediate supervisors. These were the employees to whom the statement that promotion and reward are to be strictly according to merit made little appeal unless they saw evidence of the management's ability to make good.

Some time ago a large concern in the Middle West employing 20,000 employees needed a man with some engineering training to take on a job in Glandon, Wisconsin. It so happened that this company had given constructive thought to the problem arising out of the gulf between the management and individual workers and had installed methods and instruments enabling them to know the Capacities and Interests of each of the workers. A young man in one of the mill departments was called to the personnel office. In the conversation which ensued, it became evident to him that the company knew that he had had some engineering training, that his home was in Glandon and that he wanted to get back there. He was offered the position and he accepted with alacrity. As he left the Personnel Manager's office his face was a study. "This is some company to work for," he said with somewhat more profane enthusiasm than the printed page should repeat. "Here I thought I was lost in the shuffle and they knew about me all the time."

#### LABOR TURNOVER

Where information concerning the individual does not exist, or where it is not used, then management's claim that advancement and reward depend solely upon merit and performance is a hollow boast, and this inevitably arouses that kind of discouragement which expresses itself in the oft-repeated question, "What's the use?" Here, Interest is attacked by a sense of futility and the effectiveness of the worker-in-his-work is correspondingly reduced.

Lastly, let us turn our attention to the general subject of labor turnover. Labor turnover is frequently referred to as a source of loss and waste, whereas, it is really the expression of loss and waste. Our meaning will become quite clear.

Labor turnover is necessarily a costly process. Attempts have been made to evaluate the cost of losing and replacing a man. This estimated cost runs from \$5 for an unskilled laborer to \$1,000 for a skilled workman. So many elements enter into this cost that it is impossible to approximate it with any degree of accuracy. Yet it is known that labor turnover is costly, for the loss of a man and his replacement involve losing the experience of the employee who resigns the cost of training the new worker, the cost of lessened production and increased waste during his novitiate, and the cost of the disorganization, great or small, which results from the change. Even if this total cost in the case of the average employee is only \$5, the cost in full in a year's time to a concern employing 10,000 workers with a normal turnover of 100% constitutes a substantial charge against the company's profits.

But, as we have stated above, labor turnover is equally the expression of the loss incurred by dissatisfaction and change in the personnel. It is an index of the satisfaction of the workers. Where a certain set of conditions or a certain labor policy (or lack of it) is conducive to a high turnover, it is conducive to loss by virtue of the fact that it is engendering dissatisfaction and disaffection on the part of all employees—not only those who leave, but those who remain on the job. In the measure in which it induces a certain proportion of the employees to leave, in that measure it induces those who remain to work at fractional efficiency.

This is the real significance of labor turnover.

Whereas certain types of labor turnover are natural and even desirable, an excessive labor turnover is apt to indicate basic conditions which are impairing the effectiveness of the



work force. And herein lies an ever-present source of waste of human capacity. This we shall discuss fully in a later chapter.

We have now considered a number of the primary causes of waste in production and loss in human happiness. We have referred to faulty selection and placement, inadequate training, lack of opportunity for self-expression and for advancement, unwholesome working conditions, lack of incentive, and labor turnover as factors in waste in production and in loss in human happiness. With these in mind, let us now proceed to a consideration of the type of organization that is important in an industrial or commercial institution in the removal or amelioration of these negative influences and in developing those wholesome, well-balanced worker-in-his-work units which make for group production and social well-being.

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## IV

### ORGANIZATION FOR PERSONNEL ADMINISTRATION

Importance of the right point of view. Need for a conscious personnel policy. Advantages of decentralization with centralized control. Proper type of organization for the Personnel Department. Its functions. Characteristics of the successful Personnel Manager. The prerequisites of success.

IN the preceding chapters we have discussed the field of personnel administration in general; and we have considered some of the more important factors in industrial life which produce waste in production and loss in human happiness. We have shown that personnel administration, properly carried on, serves the economic objective of production and efficiency and the social objective of contentment and achievement. We have taken a bird's-eye view of several of the primary influences tending to defeat those objectives. Our discussion, consequently, has been in the nature of an analysis of conditions surrounding the worker-in-his-work. Now let us proceed to the study of those positive influences and constructive practices which tend to remove or offset these negative influences, and which, in consequence, tend to promote production and human happiness.

#### THE RIGHT POINT OF VIEW

It is universally recognized that the business house or the industrial concern, whatever its nature, has a distinct responsibility to the community to fulfil the obligation to render a worth-while service. Its field of activity may be that of extracting coal or iron from the earth, that of merchandising goods to the retail trade, that of furnishing trans-

portation or electric light. Whatever it is, it must meet the standard of social usefulness and so find a social demand. Unless it does so, it will find short shift in our economic scheme of things.

In the second place, the employer has a fundamental responsibility to those whose financial investment enables him to operate. The money invested in the enterprise must yield its fair return to the owners, for we are living in an economic age and economic law must be observed. The penalty for failure to return to the investors an adequate yield on their investment is certain.

Long ago business and industry began to recognize the importance that wholesome personnel relationships play in the ability of a concern to fulfill these two obligations, to the public and to the investor. In fact, centuries ago the economic loss involved in driving a worker until he dropped and then replacing him became obvious. Since that time, up through the period when the commodity conception of labor was universally accepted, and on up until today when we are beginning to realize the importance of the all-around well-being of employees as human beings in efficiency and production, our point of view has become more and more enlightened. Even those employers who still think of their employees only as mechanical agents in production, are becoming increasingly appreciative of the degree in which human rather than mechanical methods of administration serve to increase their economic effectiveness. So far, so good. But in these days of rapid development in all phases of life, marked advancement is evident in our conception of the men and women who act as our employees.

There are no longer merely mechanical agents in production. The advantages to be gained in economic production through policies and methods of administration which regard them as human beings rather than as "workers" are apparent. But they are entitled to consideration as human beings by virtue of a more fundamental course of reasoning than this. The workers in our public utilities, our manufacturing

concerns, our stores, and offices and those who are dependent upon them, constitute a substantial majority of our people. Any creed or policy which denies them the inalienable rights of men and women, as such, violates one of the fundamental tenets of our social order. Industry and business, consequently, in all their phases have a direct social obligation to provide their employees the privileges and rights to happiness in its broadest sense. This is a fact of which we must not lose sight in our consideration of the policies and practices of personnel administration.

The right point of view in these matters is essential to success in labor management and personnel practice, for any failure on the part of management to observe its triple obligation to the public, to its investors and to its employees, must necessarily result in an ill-balanced and inherently dangerous policy of administration.

A proper conception of the worker-in-his-work as we have discussed it, is similarly important in retaining the right point of view in personnel procedure. We must think of our employees, not as rigid units of human power that can be applied to the work of this desk or this machine, but as responsive, plastic entities which may or may not be effective in the performance of certain kinds of work according to the manner in which they are adapted to that work and the manner in which they are controlled, and directed, and stimulated in its performance.

#### THE NEED FOR AN ATTITUDE OF OPEN-MINDEDNESS

There is also need for open-mindedness. The sum total of knowledge as to the best personnel practice is not in the possession of any one person or of any one group. The reactionary employer who believes that his father's way is good enough for him and the self-satisfied employer who thinks he can do it for himself without considering the practices of others are both treading dangerous paths. Open-mindedness is not a virtue. It is indicative of willingness

to profit by the experience of others and is merely applied common sense. In this particular field, it is of especial moment. Strides are being made in the development of new and better ways of getting results. It is impossible for any one employer through relying upon his own experience to acquire and utilize this information. He must give and take, contributing the benefits of his own researches and profiting by the researches of others.

Secrecy is no longer something to be cherished in business and in industry. This is becoming more and more evident even in technical fields where previously secret processes of manufacture, for instance, were relied upon by many concerns to maintain them in a competitive market. We receive in the measure in which we give and industry and society as a whole benefit.

#### THE NEED FOR A CONSCIOUS PERSONNEL POLICY

There was a time when research was unknown in business. Not so many years ago, for instance, the chemist was thought of in the iron and steel industry as a well-meaning but quite useless individual. What did a chemist know about making iron and steel? But the chemist today is one of the most important men in the steel industry. In most other fields of activity, too, the rule-of-thumb method of administration is passing. And it is passing rapidly in the field of labor relations. Leading employers are not content to feel their way from day to day. They demand to know what factors in their labor situations are making for effectiveness of operation, what factors are preventing it. They are thinking, not in terms of tomorrow or next week, but of next year, ten years from now. In short, they are becoming aware of the need for definite personnel policies based on facts, consciously formulated and consciously executed.

Take, for instance, the problem of securing adequate workers. In many cases, as we have already stated, the practice has been to rely upon the applicant at the gate,

or where applicants became scarce, to put one's trust in advertising. This is a splendid example of the rule-of-thumb method. As a matter of fact, a great many companies, conscious of definite policies in other respects, are still following this rule-of-thumb practice, regardless of the fact that that cost is high and the results generally unsatisfactory.

The industrial concern or business house intent upon establishing an effective personnel situation must know where its present policies or lack of policies is leading it with respect to developing sources of labor supply, with respect to selection and placement, with respect to transfer and promotion, with respect to methods of pay, with respect to methods of wage determination, with respect to training, with respect to creating incentive, with respect to health of mind and body, with respect to the release of employees, with respect to individual records, and their use, and with respect to research. These are certain of the most important aspects of personnel administration with regard to which conscious policies are essential.

If it is to attain its objectives, management must also sooner or later formulate conscious policies with reference to working conditions, with reference to methods of handling suggestions and grievances, with reference to employees' organizations and the relationship of the management to such organizations, with reference to house organs, with reference to pension systems, with reference to employees' benefits, with reference to group insurance, with reference to housing, with reference to safety, with reference to absence and tardiness, and with reference to cooperative control.

#### PERSONNEL ADMINISTRATION SHOULD BE DECENTRALIZED WITH CENTRALIZED CONTROL

Now, personnel administration is not and cannot be a departmentalized function. The personnel work of an organization cannot be housed within a certain department bearing that exalted name. Personnel administration is a

leaven permeating all phases of management; the responsibility for it rests upon all executives and persons in supervisory positions. Personnel policies may be decided upon by the officers of the organization, but it is the executives, the foremen, and the supervisors who carry those policies out. They are the real personnel managers. Obviously a very great need exists for giving these executives, foremen, and supervisors the right point of view toward the administration of their subordinates. It is necessary that advice and consultation be made available to them in directing their workers. It is requisite, if the company's policies of personnel administration are to be uniformly and effectively carried out, that there should be an organization within the company, a department (if the reader will not allow the word to suggest separation and detachment) which shall be charged with the maintenance of personnel records; with the practices based upon them; with selection, transfer, and promotion in cooperation with departmental executives; with the responsibility for seeing that the company's policies relating to personnel practice and procedure are carried out.

The personnel department is essentially a line-and-staff department. To make the meaning clear we adopt certain definitions.

In the straight line organization, authority flows from the president or head of the concern through his lieutenants *departmentally* to the department heads, group heads, foremen and lastly to the rank and file workers.

Such an organization is illustrated in Figure 5.

There are certain distinct advantages in the Line type of organization. It provides for direct managerial control, it is economical, it is definite, and it ensures specialization in each line of activity. For these reasons it is particularly suited to smaller companies.

The weaknesses of this type of organization are:—it is not flexible; it forces the specialists in their individual fields to perform additional duties of a general administrative nature for which they are not especially fitted; it

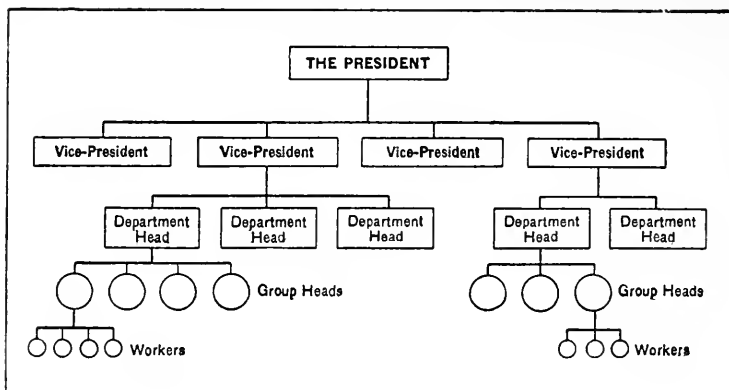


Figure 5: The Line type of organization

leaves every executive dependent upon his own abilities and resources and fails to give him specialized staff aid in matters (such as purchasing, legal assistance, personnel, and so forth) in which he needs expert counsel.

It is obvious in this organization that a sharp line of demarkation separates department from department. It would consequently be impracticable to set up a personnel department as a Line department, as its value to the operating executives in other departments where the real work of personnel lies, would be impeded and rendered ineffective.

In the straight Staff organization, on the other hand, authority flows from the president *functionally* to the department heads. Each department reports to one Staff specialist with reference to production, to another with reference to finance, to another with reference to personnel, and so forth. The Staff type is the extreme form of functionalized organization. Such an organization is illustrated in Figure 6.

In this type of organization the operating executives are freed from the necessity for performing work outside their special fields, and are offered expert counsel and advice as needed in the performance of their duties. Such an organization, however, depends too highly upon the per-



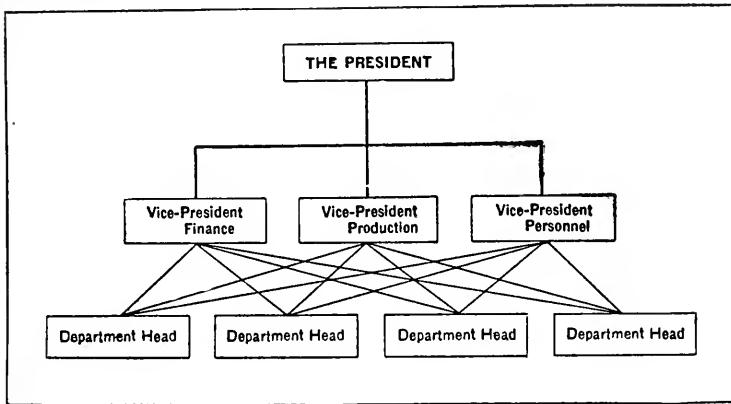


Figure 6: The Staff type of organization

sonal ability of individuals to cooperate. Sharp lines of authority are absent and the effectiveness of administrative control, of coordination of effort, of discipline, is severely hampered.

The third type, the Line-and-Staff organization, combines the principles of each of these and enjoys certain of the advantages of both. It has as a skeleton the straight Line organization, but expert staff officers exist to give the Line executives specialized advice and assistance in the performance of those duties outside their own fields for which they are not especially fitted. In graphic form this type of organization is illustrated in Figure 7.

With the exception of most smaller organizations where it is possible for personal intimacy to exist in high degree, the Line-and-Staff organization is that favored by most companies. Even where no conscious thought has been given to problems of organization, and where no organization charts have been prepared, yet in essence and in function it is usually the Line-and-Staff type of organization that is in effect.

It is obvious that the Personnel Department in any organization is principally a Staff department because its function is to render specialized service to the operating

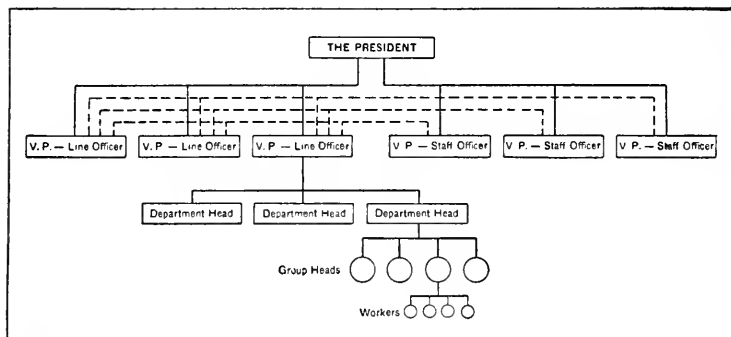


Figure 7: The Line-and-Staff type of organization

departments with reference to increasing the effectiveness of their personnel. The Personnel Manager must, of course, exercise certain Line functions as well in the administration of the internal affairs of the Personnel Department. Consequently the Personnel Department we find is usually a Line-and-Staff department.

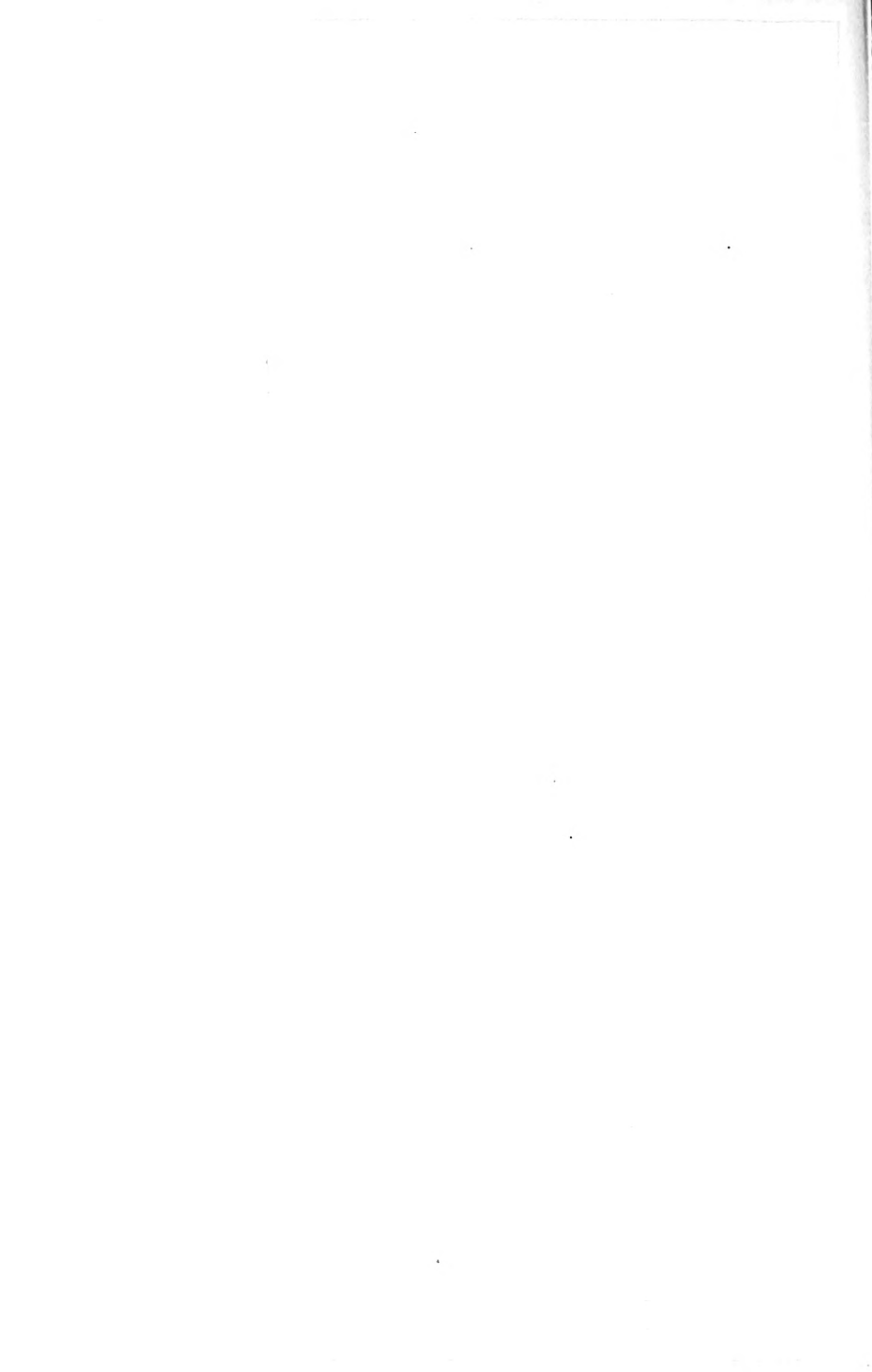
#### FUNCTIONS OF THE PERSONNEL DEPARTMENT

With reference to matters of labor administration, it is obvious that the Personnel Department acts as the connecting link between the officers who determine the personnel policies of an organization and the departmental executives whose duty it is to execute those policies. It is natural, therefore, that the Personnel Manager must enjoy the high confidence of the officers, must rank with the highest executives in the organization (immediately next, in an organization sense, to the officers) and must enjoy the privilege of constant consultation with them. It is understood that, while personnel policies are determined by the higher command, that personnel itself is something which is practiced in departmental direction by the department managers and their executives and assistants who are in fact the real personnel managers. It is understood that the Personnel Department, itself, is a department of record and coordina-

Figure 8: Type of Functional Ch... nt

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tion and that the Personnel Manager is charged with the responsibility of seeing that the personnel policies determined by the higher command are carried out in practice by the Line executives. It is his function to give them every assistance in doing so.

Figure 8 shows a type of Functional Chart of Labor Management.

In the smaller boxes at the head of the chart appear a number of those aspects of management-employee relationship with reference to which conscious policies must be determined by the officers of the higher command. These higher officers we may regard as occupying the larger box at the top. The administration of these policies is vested in the personnel department which we may think of as occupying that box entitled "Administration of Personnel Activities" and their direct execution is charged to the members of the Personnel Department and to the executives and supervisors throughout the company under the general coordination of the Personnel Manager.

It is apparent upon careful perusal that the policies set forth in the small boxes at the top of the chart are carried out under one or more of the functions suggested in the four boxes "Employment," "Personal Relations," "Education and Training," and "Planning and Statistical Research Work."

Under "Employment," for instance, are suggested certain ways of developing sources of labor supply and methods of determining the facts of individual Capacity and Interest needed as a basis for intelligent action in selection for employment, placement, transfer, and promotion. We may regard this part of the chart as covering those functions which have to do with placing the worker on the payroll.

The second box, "Personal Relations," suggests those many and varied contacts by which the management comes in touch with its workers, contacts through which the effectiveness of the workers-in-their-work should be stimulated and increased.

Because of its importance, "Education and Training" is not regarded as an item under this general heading, (although technically, it belongs there), but is set up by itself in the third box. Here is a suggestion of those conscious practices by which the Capacities and Interests of the workers-in-their-work are further increased and stimulated.

#### THE NEED FOR RESEARCH

In personnel administration, as in all other phases of management, facts are essential to wise action. Procedure based upon assumed facts or upon guesswork is apt to be ineffective and costly. The recognition of this general principle has led business and industry generally to undertake practical research work on a scale which a few years ago would have been pronounced absurd. Our conception of research has grown in recent years. Formerly we thought of it as something associated with Bunsen burners and test tubes. The principle, however, is sound in fields other than that of chemistry and physics. We see research practiced in the fields of commerce, of business, of advertising. As a matter of fact, every business house, large and small, practices research, although it may not recognize it by that name and although it may do its investigational work stumbingly and gropingly.

So it is natural that we should find intelligent research work becoming more and more a factor in personnel administration. It is impossible to determine labor policies with benefit and with fairness or to carry them into effect without having in hand, so far as possible, the facts bearing upon them. It is impossible, for instance, to determine and carry out policies of health and safety without having the facts in hand with reference to the prevalence of accidents and ill health and the causes for them. It is impossible to establish and practice policies designed to stabilize the work force without having the facts of labor turnover, both the amount and the causes. It is impossible to formulate and

carry out policies having to do with absenteeism and tardiness without having the facts as to extent and reason. The fourth box on our chart, "Planning, Statistical, and Research Work," then suggests those functions of personnel administration which have to do with obtaining and proving the information upon which all the other activities of personnel administration are to be based.

#### CHARACTERISTICS OF THE SUCCESSFUL PERSONNEL MANAGER

It is apparent that the Personnel Manager must be a man of many parts. He must have a keen sense of social justice and be fully appreciative of the rights and interests of the men and women at work as well as of the economic practices of management. He must be able to couple this sense of social justice with a warm personal interest in people. This in turn must be controlled by a wealth of common sense, which will protect him from sentimentality on one side and from coldness on the other. He must be a man qualified to advise the management on matters of personnel and capable of talking man-to-man without fear or favor with any executive in the organization. He must be a salesman capable of demonstrating the advantages of sound personnel practice and able to persuade others, even though opposed at first, to *want* to adhere to them. He must be a man of obvious unselfishness and integrity, inviting the confidence of his fellow executives and of the workers throughout the plant. He must possess tact and diplomacy in unusual degree and that sympathy of heart and manner which will invite the friendship and trust of executives and workers alike.

The Personnel Manager's task requires that he be a penetrating student of the conditions throughout his company and of economic and business conditions generally which will affect its operation. He advises the higher command with reference to matters of personnel and collaborates with them in the formulation of personnel policies.

He advises with department heads and executives on their particular problems and cooperates with such executives in their solution. He exercises an important influence in the determination of salaries and methods of payment. He acts as the direct executive of all Line personnel functions such as development of sources of labor supply, selection and placement, maintenance of personnel records, recommendations for transfer and promotion, training, incentive, rules and research. So far as it is necessary for any relationship to exist between the company and the employees' social activities, he represents the company in an advisory capacity, frankly recognizing the fact that the success of such organizations in maintaining and building morale depends usually, at least in part, upon the degree with which the company absents itself from direct contact. He holds himself in readiness to render such personal service as individual employees or groups of employees may desire.

These facts are illustrated in Figure 9.

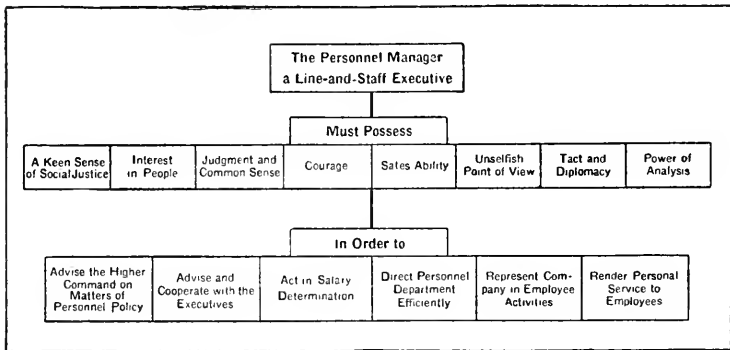


Figure 9: Chart showing the characteristics of the successful Personnel Manager

We have stated above, however—and entirely without prejudice to the Personnel Manager—that the real personnel executive in a company is the departmental chief, the supervisor, the foreman, the group head, anyone who is in direct control of the workers-in-their-work. This executive occupies



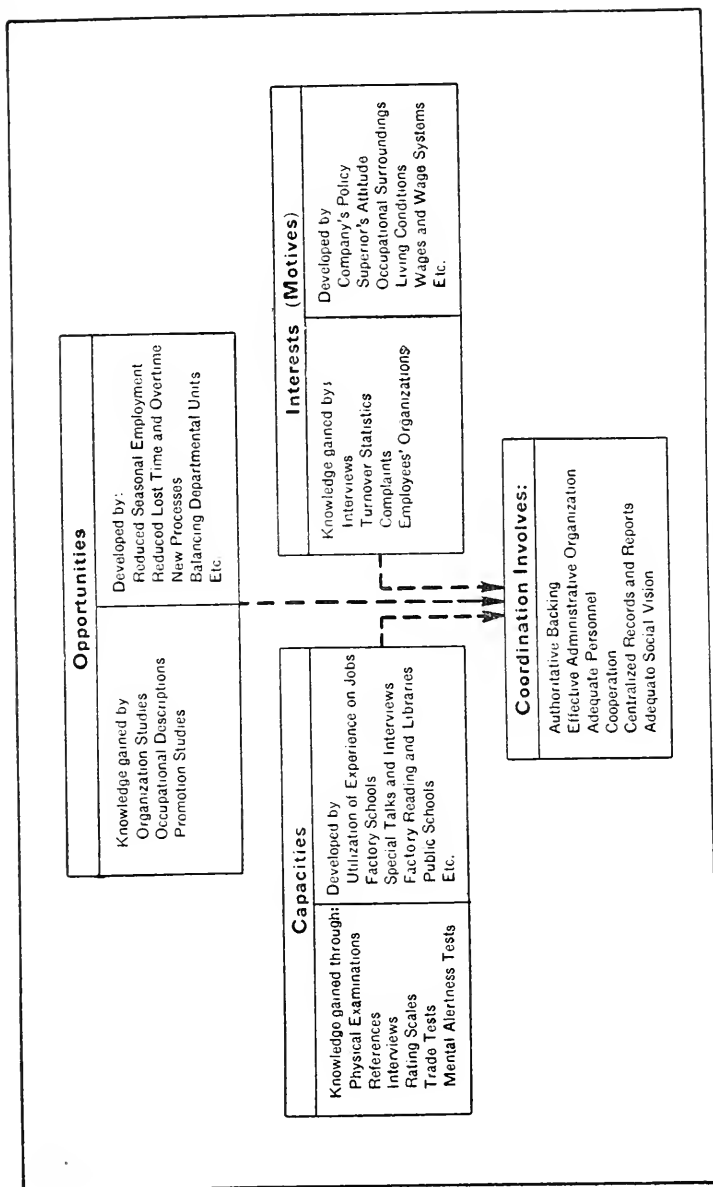


Figure 10: Chart showing how Opportunities, Capacities, and Interests can be known and developed and what their co-ordination involves

a place of tremendous strategic importance. He has it in his power to carry out the company's policies of personnel administration intelligently and effectively or to nullify and vitiate them. He has it in his power to utilize the Capacities of his subordinates wisely or to dissipate them unwisely. He has it in his power to promote the Interests of his workers in their work by good leadership, by incentive, by example; he has it equally in his power to discourage them and to depress them, by the stupid exercise of authority.

#### THE PREREQUISITES OF SUCCESS

It is obvious from all we have discussed that the development of a wholesome personnel situation within a company characterized by well-balanced and wholly effective worker-in-his-work units depends upon three separate factors:

First, the success of the higher command in determining labor policies wisely.

Second, the success of the Personnel Manager in interpreting these personnel policies properly, in achieving their proper execution through the Line executives and in making the Personnel Department render as nearly perfect service as possible to the Line executives.

Third, the success of the Line executives themselves, the captains and sergeants of industry, in fulfilling their obligations to the management and to the workers by interpreting policies wisely and interestedly and in promoting the effectiveness of their workers by thoroughgoing leadership.

In our next chapters we shall consider in general terms the procedure followed in building up a wholesome personnel situation in an industrial or commercial organization.

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## V

### GENERAL ASPECTS OF PERSONNEL PROCEDURE

Development of sources of labor supply. Inside sources of supply. Outside sources of supply. Contacts through present employees. Contacts through stockholders. Contacts through schools and colleges. Contacts through fraternal lodges and churches. Contacts through labor scouts and advertising. Selection and placement. Action must be based on facts. The interview. The application blank. The study of the work. References—their advantages and limitations.

IN this chapter we wish to take up the matter of procedure in personnel administration. We shall not go into specific detail, however, at this time, for that will be done in coming chapters. It is important, however, that we have a general understanding of the functions of the Personnel Department in order that throughout the coming chapters we shall have a true conception of the significance and purpose of each, and of its relation to the rest.

#### DEVELOPMENT OF SOURCES OF LABOR SUPPLY

It is natural that we should first direct our thought to those problems which are involved in securing the workers. Let us grant that certain kinds of labor turnover are unavoidable and even beneficial, first, because they arise from reasons which are socially and economically sound, such as marriage and promotion, and second, because they prevent stagnation of the work force. Every organization has its flow of personnel. Replacements are constantly taking place. There is a constant levy upon the community for persons capable of performing various kinds of work.

Furthermore, most progressive concerns are subject to the necessity from time to time of enlarging their organizations and adding employees to their payroll. These are

not replacements, yet growth of this kind similarly contributes to the company's demand upon the community.

This constant flow of people into the organization constitutes a very real need for a reliable supply of personnel—"a source of labor supply." Furthermore, it necessitates that kind of labor supply which will provide persons possessing the special Capacities needed in the performance of the company's tasks. The recognition that the personnel structure of a company is fluid, leads us inevitably to the conclusion that for many positions within a company, the best source of supply by far is that consisting of the persons already in the organization, usually those occupying less important positions.

The policy of "promoting from within" is a policy usually preached by management and somewhat less frequently practiced. As we have already pointed out, management frequently permits its conscious belief in the worthwhileness of a certain policy to constitute actual belief that that policy is in effect in the organization. As a matter of fact, the successful execution of the policy of promoting from within involves a technique and procedure which, while not necessarily complicated, are far more involved than the procedure of relying upon casual observation and memory to reveal the characteristics, merits, and quality of performance of the individual employees throughout the organization. We shall discuss this more fully in a later chapter.

#### THE SOURCE OF SUPPLY WITHIN THE ORGANIZATION

The inside source of supply is the best source any company has—at least for those positions which are above the rank and file. Through reliance upon this source of supply and through the conscious practice of developing understudies for all executive and supervisory employees, it is possible frequently for one vacancy to result in a series of promotions. These are called "chain promotions." A certain position becomes vacant and is filled by an appointee

from within the company whose former position then in turn becomes vacant. This is filled in the same way and a third position becomes vacant, ready to be filled by someone further down the line. Frequently five or six promotions are thus made possible by one vacancy.

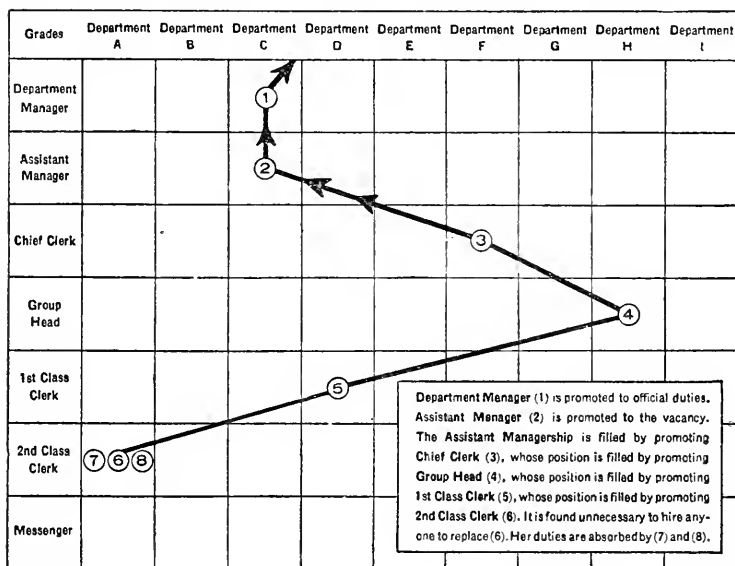


Figure 11: Graph showing the possibilities of chain promotions

It is no uncommon occurrence, when such a chain has been completed, to find that it is not necessary to hire a person from outside to fill the lowest position thus vacated. Frequently a readjustment or reassignment of duties will provide for the proper performance of those tasks which formerly were done by the last promoted employee. As a matter of fact, it is well known that a condition of inflation is usually true of the lowest rank of employees. Added employees are taken on at a time of peak load and when the peak passes, they are not laid off. So far as possible, management wishes to encourage confidence in the continuity and security of employment. The practice of immediate

laying off employees upon the slackening of work would be unfortunate (if practiced rigorously) both from the point of view of justice to the employees themselves and from the point of view of the morale of the organization. But when a vacancy occurs in the organization, and a series of promotions creates a vacancy thus in the lowest rank, the opportunity is then provided for drawing in the slack, not by dismissing one of the workers, but by the simple expedient of not hiring a new worker to fill the vacancy.

The successful execution of the promotion-from-within policy, as we have implied, involves an accurate knowledge of the Capacities and Interests of the individual employees throughout the organization. This knowledge cannot be gained nor can it be retained by rule-of-thumb methods. An adequate personnel procedure and proper personnel records are essential. The exact nature of these methods and records will be brought out in later chapters.

Nothing that has been stated, however, should be regarded as an argument that constructive thought should not be given to the development of adequate outside sources of supply. The organization obviously cannot live by feeding on itself. It is necessary to procure workers from outside, of course, but except in unusual cases it should not be necessary to engage workers from outside for positions other than those in the rank and file.

#### OUTSIDE SOURCES OF SUPPLY

It is impossible to say that any one avenue of procuring employees from outside is better than any other. Too much depends upon the company itself and upon the community in which it is situated. In a general way, however, it may be stated that the most fruitful source of supply of labor is that made possible by careful study of those persons who apply for employment. By this it is not meant that a company should rely upon the applicant at the gate. But if

we may assume that out of ten applicants, nine are judged undesirable on one count or another, the fact remains that out of haphazard applicants of five hundred persons, a waiting list of fifty who are generally qualified should be in hand.

When vacancies are to be filled, consequently, the Personnel Department will probably have records of a number of persons who are generally qualified, and if it is well-organized, such records will play an important part in its employment procedure.

It is obviously a short-sighted policy, however, to rely upon that source of supply which is made available only through casual applicants at the Employment Department. It is true that if the prestige of the company is good and if it is known as a "good place to work," the results will be more or less satisfactory as long as the need for workers remains well within the supply so made available. This is, however, seldom the case. We find on the part of practically all companies a very real need for constructive methods of developing other sources of labor supply.

#### CONTACTS THROUGH PRESENT EMPLOYEES

Many companies employ, with advantage, a plan through which the present employees are encouraged to introduce their friends. The arguments in favor of this policy seem to outweigh many times over the arguments against it. Generally speaking, birds of a feather flock together. It is usually true that the friends of employees will be the same kind of people as the employees themselves. Consequently if the standard of the employees is high, it is altogether probable that those persons whom they attract to the company will be of equally high quality. Sometimes cards are printed by which employees may introduce their friends to the Employment Department. Sometimes monetary rewards are offered to those employees who are instrumental in bringing to the company applicants who, when placed



on the job, "stay put" for a reasonable length of time. Regardless of special incentives, however, it is usually true that for personal and social reasons the employees themselves will desire to bring their friends in contact with the Employment Department. This is one method of developing the labor supply that is so obvious that it seems to require no discussion; yet it is true that a vast majority of employers have given no constructive thought to it.

Another source of supply which perhaps is not so prolific is that which constitutes the former employees of the company. It is a costly oversight for a company to lose contact with those employees who for good reason, personal or otherwise, have been obliged to resign. In the case of women employees this is particularly true. If there is death or sickness in a given family it is usually the sister or the daughter who must step into the breach at home. Yet the home situation created by a death in the family is frequently a temporary one and this is even more true in the case of illness. Consequently, department stores, offices, and factories where women are employed have found that a considerable proportion of their former employees who have been obliged to leave, subsequently become available for reemployment.

The company is in an unusually good position, in the case of these ex-employees, to use judgment in selection. It has already had the opportunity to discover their individual Capacities and Interests, not vicariously through references and outside sources of information, but directly through observation of the person on the job. Here there is no opportunity for camouflage, no probability of poor selection based upon absence of facts. If the records of the Personnel Department are adequately created in the first place and adequately maintained in the second, the management should be in a position to judge with considerable success the probable effectiveness of such a person in a position to be filled.

## CONTACTS THROUGH STOCKHOLDERS

A large public service corporation in a principal eastern city recently developed a source of supply of employees of unusually high type through arousing in its stockholders a personal interest in the human side of the company's activities. Where the stock of a company is closely held, the probability of success in pursuing such a method is naturally reduced. Yet it is undoubtedly true that many companies are in a position to develop this kind of interest on the part of their stockholders and so to create a source of supply of relatively high grade workers. The prosecution of this policy usually exerts an influence upon stockholders which is altogether wholesome to the company from the point of view of its higher command. It is usually flattering to the individual stockholder to be approached in this way if the approach is made diplomatically, and it is undoubtedly true that the employee coming into the organization through this point of contact feels an obligation to make good in a degree which, other things equal, is lacking in the employee who has not been "spoken for" by one of the owners of the company.

## CONTACTS THROUGH SCHOOLS AND COLLEGES

Many companies, especially those employing large numbers of clerical workers, find it advantageous to establish a relationship of cooperation and good-will with the principals of high schools and business training institutions. It is altogether probable that the graduates of such schools will be qualified in one way or another for work of this nature. To be sure they are usually inexperienced as far as actual business practice is concerned, but they possess the advantage of specific training which is usually lacking in the casual applicant. These institutions are continually sending out into the business world young men and women who are trained or who have attained a degree of education

above the average, young persons who, generally speaking, are the products of good homes and who, ordinarily, are possessed of ambition and intelligence. Furthermore, the principals of such schools are more than glad to meet the employer half-way. They are coming more and more to take an active interest in placing their graduates with concerns which are advanced in their personnel outlook and which are desirous of employing young people capable of advancing and assuming more and more responsibility.

Similarly, business institutions seeking for men especially qualified for advancing to executive positions of greater importance are now following the practice of establishing similar relationships with institutions of higher education. It is no uncommon thing nowadays for a concern to send a capable executive to the various colleges and universities who is able to explain to the undergraduates the advantages of association with the company he represents.

#### CONTACTS WITH FRATERNAL LODGES AND CHURCHES

Again, very satisfactory results can frequently be achieved through establishing the same kind of tie-up with various fraternal lodges and with churches. To be sure there is especial need here for careful selection. For, without intending any disparagement whatever, it is true that many clergymen find themselves confronted with the necessity for securing employment for those members of their flocks who are not able to go out and get good jobs for themselves. And their interest lies more in getting a position, any position, for their protégés than in considering the particular needs of the employer. Yet it is well known that real merit is frequently camouflaged behind an unpromising exterior. It is true that, while a certain proportion of persons so recommended may be unfit, there may be many who will make good workers.

Another source of labor supply is that made available through local employment agencies. We hold no brief

for these agencies other than to say that they have an unusual opportunity for constructive work which is seldom fulfilled. They are frequently concerned more with the mechanical sending of applicants for consideration than they are with the exercise of judgment in selecting applicants to fit the needs of the employer. However, this is not a source of supply that should be neglected. It is frequently a means of securing good workers, especially those for common labor.

#### CONTACTS THROUGH LABOR SCOUTING

The labor scout is an agent frequently used by employing concerns. He takes on especial importance in times of labor shortage. The effectiveness of this method depends upon the effectiveness of the scout. At times, beneficial results are yielded; but constant watchfulness must be exercised to prevent the scout becoming an agent of *diverting* labor from other concerns. It is unwholesome practice to engage in competition of this kind. It is conducive to unrest and to instability. The concern which engages in it creates the need for his competitor to do likewise, and in the end the reaction is bound to set back against him. In personnel practice, as in everything else, fair play is coming to be recognized as one of the principles of good practice and where a concern engages in practices which are not ethically sound from the point of view of business fair play, it is apt to suffer in the end.

#### RECIPROCAL CONTACTS WITH OTHER COMPANIES

In rare instances two or three companies, employing like or similar types of workers, have, in special cases, agreed that when one company has an individual worker of merit who desires promotion but for whom they have no opening, that they would first notify the other companies, in order that

one of the companies might, if it needed such a worker, have first call.

This practice is capable of development in a way that benefits all concerned. The companies doing so win the enviable reputation of taking care of their good employees, they relieve themselves of carrying an employee on the rolls at a higher rate of pay than the occupation warrants and they earn the confidence and good-will both of their neighbor employers and the individual employees in whom they reveal personal interest.

#### CONTACTS THROUGH ADVERTISING

We have deferred until the last, our consideration of that channel of securing labor which is at the same time most commonly used and least desirable. Advertising. It is undoubtedly true that employees of good quality are secured through this channel. It is equally true that large numbers of floaters, malingerers and others who are unfit, are attracted by the advertisement in the degree in which it is made to sound attractive. Generally speaking, advertising is the method of securing help which should be resorted to last. The concern which has established prestige among the working population as dealing fairly with its workers in terms of compensation and in terms of opportunity for advancement and which has earned the reputation for being a good place to work, should, except in time of labor shortage, have no need to resort to advertising as a means of getting workers.

#### SELECTION AND PLACEMENT

While selection and placement comprise without doubt one of the most important functions of personnel management, disproportionate emphasis has been placed upon them in the minds of many employers. This statement is made not in disparagement of the importance of this function,

but to indicate that the average employer's conception of personnel management has been far too restricted. The words *employment management* have suggested to many the process of hiring workers. It is very true that selection and placement constitute one of the major responsibilities of personnel administration. They have to do with the original creation of the worker-in-his-work unit and must be well done if effectiveness and satisfaction are to be achieved. The later functions of personnel management that are involved in the maintenance of personal relationships and in education and training can be made to serve best the economic and social objectives of personnel administration only if selection and placement have been done well in the first place.

Selection and placement have to do with the employment of new workers, it is true, but they have to do equally with the transfer and promotion of workers already on the payroll. They have to do with the choice of workers to receive specific instruction and training along certain lines of work. Selection and placement consequently are a factor in personnel administration which exercises its influence upon the worker from the time he becomes a part of the supply of available persons up through his association with the company as an employee, through the various stages of advancement and promotion until his final release from the organization.

#### ACTION MUST BE BASED ON FACTS

The general principle upon which this book is based, that facts are essential to intelligent action, applies with especial emphasis to the function of selection and placement. In a previous chapter we have spoken of the hunch method of choosing workers; we have indicated the inadequacy and costliness of such rule-of-thumb methods; we have demonstrated the fallibility of "infallible" judges of men. As a matter of fact, selection and placement cannot be well

done unless the facts are in hand as to the Capacities and Interests of the persons themselves who are being considered and as to the Opportunities of the positions throughout the organization. Those delicate adjustments involved in creating effective worker-in-his-work units can only be made if such knowledge is rendered available through the construction and efficient use of proper instruments for personnel control.

First of all, the Personnel Manager and his assistants are confronted with the necessity for knowing the Capacities and Interests of the applicants for employment and of those employees who are being considered for training, transfer, and promotion.

#### THE INTERVIEW

In a case of the applicant from without, the interview is the most commonly used method of obtaining this information. Only in most exceptional cases are workers hired without an interview. An exchange of thought as to the nature of the work and the qualifications of the applicant is essential.

But there are interviews and interviews. In some instances the interview is the most cursory of contacts. This kind of interview usually goes with the hunch method of selection. In its extreme form this kind of interview consists of merely a few obvious questions and their answers.

But there are other interviews which are more nearly worthy of the name. An interview consisting of set questions and snappy answers, is obviously a very crude affair and doesn't yield those facts of character, temperament, disposition, aptitude, inclination and interest, which are best ascertained indirectly, rather than as a result of direct interrogations.

The kind of interviewing that does yield these facts is an art. It is quite impossible to codify it or to subject it to regulations. The nature of the conversation must be adapted to the individual being interviewed and must be

so directed as to bring out such information without reserve. The word conversation is used advisedly. The conference between the interviewer and the applicant is a give-and-take of thought. The interviewer is only in a part a judge sitting upon the merits and qualifications of the applicant. He exercises his judgment as to the degree in which the applicant possesses those Capacities and Interests required in the work, to be sure, but he must also regard himself as an agent of the company whose responsibility is to give the applicant all the information he is entitled to with reference to the proposed work. It is an indictment of inefficiency against the interviewer if the applicant is engaged and upon reporting for work finds its nature different from his expectation. The interviewer furthermore must be a salesman, because—and this is frequently overlooked—the company too is on trial and the applicant is the judge; the interviewer is the attorney for the defendant.

Confronted as it is by pressing problems of production, management is frequently tempted to think of the employment of workers as a burden. Yet as a matter of fact, it is an act of primary importance in the well-being and effective operation of the organization. The transaction itself is not a matter of annoying routine, but a conference between two parties, one of whom has something to sell, the other of whom has something to buy. The applicant is entitled to the consideration and courtesy granted to anyone calling on a matter of business. The treatment the applicant receives in the employing office has much to do with his subsequent attitude toward the company. The fact that the transaction is usually a matter of vital consequence to him, places upon the management in the person of its employing executive the responsibility for considering the applicant with a most judicial thoroughness.

#### THE APPLICATION BLANK—ITS USE

We shall discuss later the several forms and records which are utilized in the interview. Suffice it to say at this



point that the interviewer must be properly equipped with the means of recording the information furnished by the applicant so that it can be properly studied at the time and preserved for future consideration. There is not always a vacancy for each likely-looking applicant. Very infrequently, in fact, is there a position vacant in the organization calling for just the applicant's Capacities and Interests at the particular time the applicant chances to call. Yet such a vacancy may occur a week or a month later. At that time the interviewer must be able to summon before him for study all the facts brought out in the interview in order to consider the applicant intelligently for the position. Were he to attempt to rely upon memory to summon these facts, grotesque mistakes and unfair decisions would inevitably result for, under those circumstances, our harrassed interviewer would be compelled to remember the qualifications of scores and hundreds of other persons as well—obviously a superhuman achievement. It is the part of the well-balanced personnel procedure to supply the ways and means of preserving these facts intelligibly. These records, in fact, become that source of supply of labor which we have previously discussed.

#### REFERENCES—THEIR ADVANTAGES AND LIMITATIONS

Many companies lay great stress upon references as a means of furnishing information as to the Capacities and Interests of applicants. It is probably true that when the use of references has been carefully studied out, good results are yielded. It is equally true that where the greatest care has not been employed in developing effectively the procedure which has to do with securing expressions of opinion from disinterested parties, the results yielded are unsatisfactory and quite often misleading.

Generally speaking there are two kinds of references. First, there is the business reference. This is the expression of opinion by a former employer or someone who has

had the opportunity to observe the applicant previously in some other work. Of course, such expressions of opinion are invited in confidence. The person to whom the inquiry is addressed has no occasion to fear that his answers will be communicated in any way to the individual concerned. If such replies are not frank and precise it is not due to this fear. Yet other factors tend to cancel the value of such expressions of opinion. In the first place the former employer himself may have formed a misapprehension of the qualities of the individual, may even have dismissed him for reasons which were unsound. In the second place, his recollection is apt to be faulty. To be sure, if he maintains personnel records there should be data available to enable him to answer such inquiries intelligently. Yet several months after the withdrawal of the individual from his employment, the employer's interpretation of such entries may be faulty.

Another factor which frequently tends to offset the value of such opinions is that they are furnished without any great care. If the letter of inquiry is received on a morning when a peak load of work is absorbing the energies of those to whom the inquiry is referred, the reply is very apt to be of a stereotyped nature. If the former employer is asked to express his opinion in his own language, he does so briefly and hastily. If the letter of inquiry is so constructed that the former employer can express his opinion by entering check marks in certain boxes he is apt to enter such check marks without any great thought as to how they will be interpreted.

But the factor which constitutes the liveliest negro in the kindling box is the very frequent and very human desire of the former employer to refrain from giving the individual a black eye, no matter how unsatisfactory and unsavory his previous service may have been. Very likely the former employer reasons that he does not wish to be a source of added difficulty to the ex-employee in staging a come-back and in making good after all. We find, consequently, that

certain classes of employers with the most honest intentions in the world purposely refrain from giving a true idea of the exact facts (if the exact facts are not in the ex-employee's favor) through the very natural desire not to stand in his way. It is obvious consequently that such expressions of opinion must be accepted with a grain of salt and it is doubtful if any reliable practice has been evolved for applying these necessary compensations.

The same comment can be made to a certain extent with reference to those other references which are known as personal references and have to do more with character than with ability. The person who receives a letter requesting information as to the qualities and integrity of a third person is confronted by two responsibilities; first, that of playing fair with the person or concern from whom he has received the letter and second, that of playing fair with the third person.

A person's reaction to such a letter will depend, of course, upon his attitude toward the person who is inquiring and upon his attitude toward the person about whom the inquiry is made. If he has high regard for the former, but little regard for the latter, he will naturally be influenced more by the desire to present the facts as they are without undue emphasis one way or another. If he has high regard for the latter and little interest in the person or concern from whom the letter of inquiry is received, he will probably be inclined to clothe his answer in language which will not be detrimental to the interests of the worker.

The applicant for employment usually possesses enough good sense to refrain from naming as a reference a person whom he knows has formed an unfavorable opinion of him. Consequently, letters of inquiry addressed to personal references usually are received by persons who represent but one point of view toward the applicant, that of personal prejudice in his favor. The employing concern will not receive through this channel of information those compensating bits of detrimental information which might be received

from others who know the applicant but who through the "common sense" of the applicant have not been named as references. Opinions from character references then must be heavily discounted. It might be said, in fact, that they possess very little value except where they are unfavorable to the applicant.

In any event it is desirable for the employer to treat with every consideration the persons and concerns from whom he has asked information about applicants for employment. His requests for information should be courteously phrased and express a willingness to reciprocate when requested. If possible, the letter should be so constructed that while it requires intelligent thought in reply, it can be answered with the minimum of effort. When persons of superior qualities are being considered for higher positions, personal conversation or personal letters are much preferable to stereotyped inquiries of this kind. In these cases the persons from whom the information is requested will be glad, ordinarily, to give the matter the personal attention it seems to call for. But as a matter of actual practice this is probably too much to expect in the case of rank and file workers.

#### THE STUDY OF THE WORK

It is obvious that an accurate knowledge of the work in the positions to be filled is essential to the proper selection of employees. Casual knowledge does not suffice. That kind of knowledge of the duties and requirements of a position made available to the interviewer through casual observation or through conversations with the departmental executives is inadequate. It is quite impossible for a person to retain as a matter of memory all the salient facts of a position essential in hiring workers for it. Adequate instruments and records are requisite whereby this information will be in hand and will be reliable. Their exact nature and use is a matter for consideration later in this book. It is desirable, however, in considering the general procedure of hiring

workers to lay due stress upon the necessity for adequate methods of knowing the duties and requirements of each position, as well as the Capacities and Interests of the applicants and workers.

There is, of course, no sharp line of demarcation between the process of selection and the process of placement. When selection is made in the light of the requirements of the work, it automatically becomes placement. Yet there is a tendency to think of selection as the choice of employees according to their *general fitness* for membership in the organization, to think of placement as the decision as to where they shall work in the organization in the light of their special aptitudes. In the next chapter, consequently, we shall discuss personnel procedure particularly from the latter point of view.

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## VI

### GENERAL ASPECTS OF PERSONNEL PROCEDURE (*Continued*)

Selection and placement. The value and limitations of tests. Tests for special ability. Tests for mental alertness. Examination for physical fitness. The interviewer's rating scale. The initiation of labor requests. Introduction to job.

THE practical results of psychological work in the United States Army during the war opened the eyes of many employers to the value in industry of research along the lines of individual Capacity. Psychologists have contributed greatly to industry in this field during recent years. Certain persons, many of them employers, have seized such methods with avidity and have let their enthusiasm run away with their judgment, thus doing more harm than good to the intelligent consideration of psychological methods as useful procedure in selecting workers. As a matter of fact, psychologists have been forced in their contact with industry to lay greater stress upon the limitations of psychological methods than upon their possibilities.

#### THE VALUE AND LIMITATIONS OF TESTS

It is true, however, that in the determination of physical and mental capacities, tests of various kinds are effective under certain conditions. It is quite impossible, nevertheless, to lay down any general rule. It cannot be said that because dexterity tests are valuable in one company, they are therefore valuable in all companies. It cannot be said that mental alertness tests, because they have proved of value in selecting clerical workers here, will be equally effective there.

When a concern employs tests in the selection of employees, it is necessary to proceed with open-mindedness and with caution. Nothing should be taken for granted. If certain tests are effective in selecting certain types of workers, their effectiveness can be proved statistically by standardizing the test, by checking the findings of the test against the effectiveness of the workers in their work. Research obviously should precede practice. When this kind of statistical investigation has demonstrated the fact that most persons who score high in a certain form of test succeed in a certain type of work, then that test may be regarded as having passed out of the research field into the field of operation. It can then be used as an instrument in personnel practice.

There are a number of different kinds of tests, none of them perfect, yet most of them possessing merit of one kind or another. In certain kinds of factory work, for instance, digital dexterity is desired. This is one particular and very specific kind of capacity. In these kinds of work it is known by experience that a person who possesses digital dexterity will, other things being equal, succeed in such work. Consequently, it is desirable to know whether the applicant for such work possesses that kind of dexterity. Tests have been evolved to ascertain whether or not an individual possesses that kind of dexterity. In all probability then such a test will be valuable in selecting workers for that work.

#### TESTS FOR SPECIAL ABILITY

This, however, is where the need for caution arises. This line of reasoning is not absolute by any means. But it can be regarded as conclusive if a statistical study is made of results and the findings of the test over a considerable period of time be checked against the success of the workers-in-their-work.

There are other kinds of special ability tests. These are usually devised within the concern itself to select workers for certain kinds of work. The United States Army used such tests very largely during the war. The Trade Test Division of the Committee on Classification of Personnel gave its undivided effort to this problem. During the early days of the war reliance necessarily was placed upon the intelligence of the interviewers in determining by conversation with the recruits whether or not they possessed ability in this line or that. The information so given by the recruit was often distorted unconsciously through an undue amount of ego or through an undue amount of modesty or consciously in the desire to obtain a certain kind of assignment. This conscious misrepresentation was sometimes actuated by the purest of motives. Many men undoubtedly concealed their technical skill in order to secure assignment to combatant units. Others less worthily concealed their ability along certain lines and overemphasized their ability in others in order to secure safe berths. The job of chauffeur in the army, for instance, was regarded by many as a good assignment. Many men testified to their ability to drive a car, when, in fact, their experience had been entirely devoted to the navigation of Fords. The cost of this misinformation was apparent in the motor repair bills.

The Truck Driver's test was one of the first created by the Trade Test Division. The A. E. F. had had difficulty with certain units of truck drivers sent overseas by the General Staff. A request was made for a more careful selection of truck drivers. In several of the training camps these tests were set up and men who claimed ability as truck drivers and as chauffeurs were required to operate trucks under the conditions set forth in the test. In this test many fell by the wayside and were detailed to other work. Thereafter the men sent overseas as truck drivers proved much more efficient.

Altogether the army trade tested 250,000 men. All of these men had claimed skill in one occupation or another. The



tests revealed that 6% of them really possessed the expert skill they claimed, 24% of them possessed journeyman skill, 40% of them had the equivalent of apprenticeship knowledge of their trade, 30% knew nothing whatever of the trades in which they claimed expertness.

The same incentives to misrepresentation exist in industry, especially during times of labor surplus. When jobs are scarce, the competition for positions is much keener than in the times of labor shortage. The applicant for a given position requiring skill, who sees a dozen other men in the employment office seeking for the same position, is naturally inclined to paint his abilities in as rosy colors as possible.

As we shall explain, special ability tests usually break down into two kinds, Oral and Performance. The Oral Test is the simpler of the two and is based upon the principle which is well established, that skill in a certain occupation parallels knowledge of that occupation. Consequently, the theory of the oral test is that by measuring the applicant's knowledge of the trade in which he claims expertness, the employment manager can secure reliable information as to the amount of skill in that trade he possesses. The Performance Test is more direct. It is based upon the principle that expertness in any occupation is positively revealed by performance in that occupation and it attempts to concentrate into a few minutes or a few hours a selected variety of experience which ordinarily on the job might be extended over months or years. The Truck Driver's Test in the army camps was of this kind.

#### TESTS FOR MENTAL ALERTNESS

Another test which is frequently used and often misused is the Mental Alertness Test. This test undoubtedly contains much of value and at the same time has been injured and retarded by the unguided enthusiasm of many of those who have had some experience with it.

Like all other tests, the Mental Alertness Test is not a test of general ability but of one specific quality of mind. It is not intended ordinarily to be a true index of such qualities as initiative, judgment, and knowledge, but it is usually a fairly accurate index of that quality of mind which for want of a better term we call mental alertness. Mental alertness is akin to electricity in that while we are not sure what it is, we can, to an extent, control it and put it to work. Certain concerns, for instance, know that in special kinds of work, persons who are able to score high in a Mental Alertness Test are apt to succeed. This is especially true in the case of certain types of clerical work. It is even more true in the case of executive work. It is true within limits in the case of salesmen. On the other hand, while the test results are significant in the selection of factory workers, their use in this field needs most careful checking and supervision.

In Chapter XIV and XV we shall discuss Mental Alertness Tests more intimately. In this general review of personnel procedure, it is only necessary to make the general statement that Mental Alertness Tests, like all other tests, are of value only under certain conditions; that like all tests their results should be used only in conjunction with other known factors; and that when they are of value it can be proved statistically by checking the findings of the test against the performance of the workers in their work.

Industry is coming more and more to demand of the psychologists tests which will be of value in selecting workers capable of *developing* expertness in this work or that. These are known as Special Aptitude Tests. In certain situations the Mental Alertness Test can be thought of as a modified Special Aptitude Test, but its value in this respect is, of course, restricted. As a matter of fact the Special Aptitude Test is something with which very little progress has been made, but in which there is endless opportunity for worth-while research.

## EXAMINATIONS FOR PHYSICAL FITNESS

Physical examinations, of course, are coming to be used more and more as a method of helping select workers. They are still regarded askance by certain groups of employees who suspect their misuse. It is obvious, however, that physical qualifications have much to do with the person's ability to work in a certain environment and with his success in certain types of work.

The physical examination is a means of protection for all concerned, for the applicant as well as for the employer. It is a costly process for the employer to assign to a job a person who is mentally qualified for it but who lacks those physical characteristics of health and strength which are essential to his continued performance. It is equally costly to the employee to be assigned to work for which he is not physically qualified when he might readily be assigned to other work for which he is rightly qualified in every way.

The physical examination, ordinarily, is not a rigorous ceremony. Usually it involves a quick examination of eyes, ears, and throat. Bronchial tendencies are, of course, looked for and any inclination to nervousness or tuberculosis.

The examination naturally varies somewhat from company to company. Men who are to be assigned to heavy laboring work will be tested for physical strength as well as physical health and especial emphasis will be laid upon heart action. Similarly, for workers in offices, especial emphasis will be laid upon eyesight, the pulmonary system, and signs of tubercular tendencies.

## EVALUATION OF PERSONAL QUALITIES

Again there are certain qualities which cannot be tested. Because this is so they must be *judged* and our information as to whether a person possesses such qualities will be accurate or inaccurate in the degree in which the judgment of the interviewer is accurate or inaccurate. Among such qual-

ities are personality, appearance and manner, initiative, judgment, perseverance, tact. The fact that these qualities are intangible and incapable of measurement by test does not detract at all from their importance. In certain types of work they possess tremendous importance. It is possible that an employee may succeed or fail according to the degree in which he possesses them.

Modern personnel practice has furnished methods whereby the interviewer is enabled to consider these various qualities in a detailed and judicial manner and to reach an intelligent opinion as to the degree in which the applicant possesses them far better than if he attempts to make such judgments unaided. The idea of this technique is not new. It does not take the place of judgment. It is merely a vehicle for the expression of judgment. Its effect is to help make judgment more accurate. This technique will be discussed in Chapter XIII.

#### THE INITIATION OF LABOR REQUESTS

It is the usual practice for the department head to decide what personnel he needs. The function of the Personnel Manager is not that of line control over the personnel needs of each department; this responsibility very properly rests upon the departmental executive. The Personnel Manager, however, does exercise a staff control over the personnel needs of each department, which expresses itself through the medium of advice and consultation to the department chief. Any deviation from this practice has its dangers. It is difficult for the management to hold a department chief responsible for the costs of his department if he is not also granted the authority to exercise his own judgment. Responsibility and authority seldom can be divorced.

Consequently, it is customary for the Employment Department to be governed in its day-to-day routine operation by requisitions for labor received from the department managers. Such requisitions are ordinarily prepared in pad

form with carbon so that the department head can express his needs concisely in terms acceptable to the Employment Manager and retain a copy for his own records.

It is the practice in many concerns for the department chief to indicate on the requisition the type of person he wishes referred for employment. He indicates the nature of the work that the person is to do and the qualities and experience he should possess. Modern personnel practice, however, is getting away from this rule-of-thumb procedure. Provision now exists for a mutual understanding between the Personnel Department and the department chief as to the duties of each position and as to the qualities and experience the worker should possess. Where the personnel procedure of a concern has advanced to this point, it is necessary for the department chief merely to indicate the number of persons wanted, the jobs for which they are required, and the dates on which they are to report; all other essential information needed in the selection of the worker is already automatically in the hands of the Personnel Department.

#### INTRODUCTION TO JOB

In most organizations in which personnel practice is not advanced, the introduction of the worker to his position is a haphazard affair. In instances the newly selected applicant is given a slip of paper and told to report to Mr. Blank. Mr. Blank looks at the slip of paper first, then at the applicant and tells him to get to work on Machine 36.

Fortunately, the customary practice is far more human than this. If the applicant is a floater it makes little difference, as regardless of the manner in which he is introduced to his job, he will probably float away in much the same manner as he floated in. It is not with reference to the floater that poor procedure in introducing the worker to his work is costly. On the other hand, no effort is too great to introduce properly to his work the applicant who is earnest and desirous of permanent employment. The errors which are most frequently noticeable in introducing the new

worker to his work are of two kinds: First, informational, and second, inspirational.

Where proper instruments of personnel control do not exist, it is almost unavoidable that the new employee will come to his job without a full conception of the work he is to do or of the conditions under which he is to do it. The interviewer is compelled to rely upon his own observation and memory to give the applicant a picture of his new environment. Memory is a feeble instrument of record at best and the interviewer with a long line of waiting applicants is not the person best qualified to draw a faithful and detailed picture of the job and its surroundings or to answer all inquiries patiently and fairly. Consequently, the new employee frequently finds his work quite different from what he had expected. It turns out to be not at all what he wanted. He is placed in a position of embarrassment because, while he wants a job and so cannot afford to assume too independent an attitude, it turns out that the job he has secured is not what he wanted. Dissatisfaction sets in—a dissatisfaction that is usually inarticulate—and the new worker (instead of becoming a permanent unit in the organization) begins to think of work elsewhere and of the opportunities for finding in other organizations the work which he really wants. We shall see later the extent to which labor turnover exists among newly employed people.

In giving the applicant a thorough understanding of the nature of his work and of the conditions under which he is to perform it, employers are now beginning to use a definite technique designed to define the position in terms of duties, the working conditions, and the capacities required in its proper performance. The modern practice is to require the applicant to acquire actual positive information about his job and prevents any kick-back afterwards to the effect that the job had been misrepresented to him.

With reference to the inspirational aspect of the introduction of the worker to his work, it may be said that, generally speaking, the practice of giving the employee a slip of paper to hand to Mr. Blank is being abandoned. On

the other hand, the new employee is treated with greater and greater consideration and courtesy. It is the practice of many concerns to provide an escort to accompany the new employee to his department. This job has even been taken out of the hands of messenger boys, as the obvious fact is becoming even more apparent that reassurance and confidence can be given to the new employee, who is often half-scared anyway, by an adult capable of engaging him in the right kind of conversation on the way from the Employment Office to the department in which he is to work.

In this chapter and the preceding one we have discussed methods of developing sources of labor supply, methods of selection and placement, and methods of introducing the new worker to his work. In the next chapter we shall consider those aspects of personnel procedure which have to do with the worker after he has become a member of the organization.

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## VII

### GENERAL ASPECTS OF PERSONNEL PROCEDURE (*Concluded*)

Need for a definite plan to follow up. The nature of the follow-up interview. Supervision. Health maintenance. Inauguration of the physical examination. Necessary medical equipment. Incentive. Rating as an incentive. Personal service. Selection for training. Training. Wage determination.

IN the preceding chapters we have discussed in general terms those phases of personnel procedure that have to do with the development of sources of labor supply, with selection and placement, and with the introduction of the new employee to his job. The process of hiring, let us assume, has then been completed. The new worker is on the payroll; he is at work. Now let us devote our attention to those aspects of personnel procedure which have to do with the worker after he has become a member of the organization.

#### THE FOLLOW-UP

Personnel work cannot be mechanized. The employer who attempts to make his personnel procedure a matter of technique, records, and formula is leaving out the heart of good personnel work. Personnel work, if it is to be real, must be *personal* work. There must be an intimate personal relationship between the management and the individual worker. Effective methods and records are instrumental in personnel work only in so far as they help to make this personal relationship more intimate and more genuine.

In achieving this result, management has come to recognize the necessity for some kind of periodic contact between management and worker other than through the daily



supervisory relationship. When a worker has found his niche in the organization, has established a relationship of sympathy and understanding with his chiefs and his associates, and has gained that confidence that arises only out of familiarity with the surroundings, the need for such an extra-routine contact with management becomes perhaps less constant; at least in the degree in which it is important in the case of new employees.

The new employee usually passes through a period of critical mental impressions during the first few weeks or months of his employment. Everything is new to him; everything is strange. Circumstances of little or no significance assume disproportionate importance in his eyes. He is worried by minor incidents which, were he fully established in his work, would not cause him a moment's thought. The newness of his surroundings puzzles him. Because he is so new in his position, the outside world is very nearby and when things seem to go wrong, he wonders if he has been wise in his choice of employment; perhaps it is not too late; perhaps after all he had better get a position in the X Company three blocks away.

These mental states of uncertainty are intangible, but none the less influential. At the end of a week the employee quits, although unable to give any very satisfactory reason for doing so. Or one morning he simply fails to appear for work. This kind of labor turnover is less frequently the result of poor selection or faulty introduction to the job than it is the result of depression and discouragement after he has begun work.

#### THE NEED FOR A DEFINITE PLAN

To offset this intangible, yet certain reaction of the new employee to strange surroundings, employers frequently adopt a definite follow-up plan. This plan provides for a personal interview, informal rather than formal, by a representative of the Personnel Department. Bewildered by

his new surroundings, the new employee thinks of the Personnel Department as his sponsor. He recalls the interested and sympathetic attitude shown by the Personnel Manager and his lieutenants—an attitude of understanding and sympathy which may be equally that of the department head or foreman, but which that executive has less opportunity to demonstrate owing to the fact that he is faced every day with the disturbing and pressing problems of production.

Usually this informal follow-up of the new employee takes the form of a casual chat for a minute or two at his desk or machine. He is asked how he is getting along, how he likes the work, how he likes his surroundings. He is led tactfully to give utterance to any questionings or reservations which he may have entertained since starting work. Such reservations are usually imaginary and fictitious, but unless they are so expressed and dispelled, they are apt to cause as much trouble as if they were genuine and founded on fact. Because this is true, management cannot afford to ignore imaginary grievances merely because they are imaginary. As far as the effect upon the Interests of the worker is concerned, they are equal in importance to grievances which are real. They differ only in the method of correction. If a grievance is justified, it is corrected by adjustment. If it is imaginary, it is corrected by explanation.

#### FREQUENT CONTACTS ADVISABLE AT FIRST

It is found advisable for the Personnel Department to establish such follow-up contacts more frequently during the early days of the individual's employment than later on when he has become settled in his job. It is well, for instance, for a representative of the Personnel Department to have a chat with the employee the very afternoon of his first day of work. This may serve the purpose of sending him home after his first day's work in a satisfied frame of

mind whereas, otherwise, he might have a doubtful report to make to his family.

The follow-up plan, furthermore, serves the purpose of yielding further information as to the Capacities and Interests of the workers. No matter how effective the employment process has been, there is much information regarding the Capacities and Interests of the new worker which is not yet in hand. This more specific information will yield itself up as there is increased opportunity to observe the worker in his work. But such observation must not be casual. It must be conscious and well planned. The representative of the Personnel Department must have it in mind as he interviews the new employee on his follow-up rounds.

Whereas the new employee may have been ill at ease during his first interview owing to the feeling of being on trial, he will probably be more confident and more communicative in the follow-up interview if it is conducted in the right manner by the representative of the Personnel Department. Furthermore he will have had an opportunity at that time to have observed his work and his working environment and he may take certain distinct reactions to them of one kind or another which will throw further light on his Capacities and Interests.

The follow-up similarly yields added information of the Capacities and Interests of the old workers by virtue of the fact that they have had opportunity to change and develop in Capacity and Interest since their initial interviews in the Employment Department. It has been pointed out above that the personnel situation in any company is in a fluid state partly by virtue of the fact that the employees themselves are constantly changing and developing in Capacity and Interest. Management will fall woefully short of its objectives if it continues to think of the employee in terms of the Capacities and Interests which he demonstrated upon being hired. Whereas in earlier days the intimate relationship between the employer and employee permitted the employer to know the employee's progress and

self-development, just so is it necessary nowadays for management to obtain that same information through conscious effort. This is where the follow-up interview serves a second useful purpose. It yields information as to the changed and developed Capacities and Interests of the worker which are recorded in the Personnel Department as we shall discuss in Chapter IX.

#### THE NATURE OF THE FOLLOW-UP INTERVIEW

Whereas the early follow-up contacts with new employees can be made best on the job, it is undoubtedly good practice in the case of employees older in service to invite them to a regular "set-down chat" in the Employment Manager's office or in one of the interviewing rooms. This serves to free the individual from the embarrassment possibly arising from the presence of his fellow employees. It brings him into an atmosphere free from the pressure of production and if the interviewer is diplomatic, establishes an ease of mind and confidence on his part which in turn will lead him to be more communicative. Such interviews, as we have pointed out, should not be permitted to degenerate into a series of questions and answers or to remain stilted and forced. An atmosphere of friendly interest should be aroused. The employee should be encouraged to speak freely. Good humor should ordinarily prevail, and the employee should be protected in the assurance that what he says will be regarded as confidential.

Lastly, the follow-up often furnishes information as to working conditions and as to the mental attitude of the workers, which may have escaped the vigilance of the department heads and foremen. It is absurd to think to what extent the average employee will refrain from coming to his chief with complaints and suggestions. Yet this hesitancy is not remarkable. Many executives unconsciously assume a manner which does not invite these kinds of comments. Sometimes the chief does not meet his employees half-way in this respect. The employees, sensing this, hesi-

tate to come forward with facts and fancies which might be of great value to the executive in improving certain conditions within his department.

This reserve, however, does not exist in equal measure between the employee and the representative of the Personnel Department—provided, of course, the representative of the Personnel Department exercises the proper diplomacy and tact in commanding the confidence and respect of the employee. In these interviews much information of this kind is brought to light. Because this is so, the Personnel Manager is often aware of unwholesome facts and conditions prevailing in certain departments which are not apparent to the department heads themselves. He is in an unusually favorable position to observe such facts and conditions by virtue of his detached viewpoint.

Of course, the Personnel Manager will not betray any confidence which may have been placed in him by the employee in the follow-up interview. Yet without betraying such confidences, the Employment Manager is frequently able to communicate facts to the department heads which he would not possess otherwise, and which he can utilize in increasing the effectiveness of his department. This relationship is at best a delicate one. It calls for extreme diplomacy on the part of the Personnel Manager. If the department chief is cooperative and open-minded, he is appreciative of such cooperation on the part of the Personnel Manager. On the other hand, if he is by temperament inclined to be standoffish, he may regard such offerings on the part of the Personnel Manager as undue interference.

Yet, where this work is done with intelligence and with tact, the results cannot fail to be favorable to the workers themselves and to the executives who supervise them.

#### SUPERVISION

The worker's principal contact with the management is, of course, through his immediate superior. The executive

is the key-man. He has it in his power to inspire his workers, to develop them; he has it equally in his power to discourage and depress them. All other things equal, the degree of stability, contentment and effectiveness shown by the workers in a given department depends primarily upon the degree of leadership exercised by its chief.

For the old-time foreman, whose chief assets were his technical skill and his ability to discipline workers, is in the discard. Management has come to demand more from its executives. It is recognized now that while technical skill is valuable, it is not nearly so important in a supervisor as the ability to direct those who possess technical skill. It is appreciated that the ability to discipline is a poor thing when contrasted with the ability to lead.

Supervision includes all those manifold contacts which exist between the management and the worker in the performance of his work. This is not the place to discuss them in detail. We shall take them up later in Chapter XXV. Before passing on, however, to the other forms of personnel procedure, it is desirable that we thus acknowledge supervision as one of the most important factors in the relationship between management and worker.

#### HEALTH MAINTENANCE

It is coming to be recognized in greater and greater measure that the physical examination is an integral part of the hiring process. We have already discussed its value in the selection of persons for employment in general and for specific tasks in particular. It has undoubtedly been the means of reducing occupational disease and that unwholesome labor turnover which is its accompaniment. Persons susceptible to certain physical and nervous strains are now diverted intelligently to those kinds of work in which they will be free from them.

The value of the physical examination, however, does not stop with the hiring process. Many concerns make a prac-

tice of examining their employees periodically and the benefits are apparent. Few persons are conscious of ill health, yet there are many not in perfect health who are unaware that they are not wholly fit. They are not efficient in their work; they are nervous and irritable. They seem to be getting nowhere, yet seldom do they trace these results to ill health.

Now the inauguration of the periodic physical examination places upon the management a very real responsibility, that of imparting a thorough understanding of the methods and purposes of the examination to the employees. The wise employer will not attempt to establish the periodic examination by edict. Instinctively, almost, the worker seems to regard the physical examination with suspicion. Certain employers have undoubtedly used it as a means of ridding themselves of undesirable employees. This has given rise to a perfectly natural reaction against it. And the physical examination as an institution has suffered in consequence—even in those organizations in which the motives of the management have been above reproach.

It is frequently found advisable to make the periodic examination optional with the employee at first rather than compulsory. Whereas an employee may hesitatingly take advantage of a physical examination offered on an optional basis, he frequently shrinks from a compulsory examination—that is, until he learns its innocence of motive and its personal value to him. Certain types of persons prefer to live in a false paradise rather than to learn the possibly unpleasant truth. They avoid this possibly unpleasant truth even if acquaintance with it will save them future trouble. None of us are entirely free from this quite human failing.

#### THE INAUGURATION OF THE PHYSICAL EXAMINATION

The existence of this point of view calls for special effort on the part of the management to launch the periodic examination in a way likely to create confidence. The employees

should be shown that as long as they are "reassured" of good health only through refusing to face the facts, they are classifying themselves with the well-known ostrich. They should be shown that no more courage is required to go to the dispensary than is required to go to the paymaster's window. They should be shown that instead of harm, only good can come to them from an interview with the company's physician. They should be shown that such a periodic examination is their best guarantee that their earning power will be maintained and increased. Instances are abundant of employees who could have saved themselves serious and lengthy illnesses (and at times total loss of earning power) had they known in advance that they were not in tip-top condition and had they taken steps to prevent the development of their disability.

From the point of view of physical health, obviously, the periodic examination serves equally the interest of the employer and the interest of the employee. It serves to reduce the probability of interruption to production. It serves to maintain the individual's earnings. It is apparent, however, that if the desired results are to be obtained, the *cooperation* of the employee is essential. He must be prepared to cooperate with the company physician not through a sense of compulsion, but through a realization of personal benefit.

The physical examination necessarily involves adequate physical equipment and adequate nursing service. The physician should be more than a diagnostician. Whereas he is a diagnostician first, yet he must be prepared in minor cases to apply the necessary remedies.

The doctor's office is usually supplemented, consequently, by restrooms and by a dispensary where treatment of this kind can be administered.

#### THE NECESSARY MEDICAL EQUIPMENT

In most concerns there are daily instances of employees who are out of sorts, yet not ill, who require temporary rest



or relief, but not serious medical attention. Such employees can be taken care of best in the company dispensary. Rest and temporary relief frequently make it possible for them to go back to the job and to finish out the day rather than to go home, leaving an empty job and an impaired attendance record.

A competent nurse is, consequently, a prerequisite in the medical department. It is her function to take care of indisposed employees under the doctor's direction and to render first aid during the doctor's absence.

She usually combines with these duties the function of visiting the employees who are home due to illness in order to render such assistance and consultation as it may be proper for the company to offer. This naturally calls for a person of unusual personality and high degree of tact. She must be able to think quickly in order to adapt her approach to the attitude of the person who is being visited. She may find a warm reception and a sense of appreciation of the company's interest in the employee's progress; she may, on the other hand, find a cold reserve and a sullen resentment at the company's intrusion upon matters which are not its concern.

The greatest of care must be exercised that the ethics of her profession shall be rigorously maintained. Many concerns have unwisely tinged their home-visiting service with espionage. Such concerns will justify this procedure on the grounds that they are entitled to know why their employees are absenting themselves from their work. Espionage in any form is intolerable. It has its roots in suspicion. The information it yields is apt to be faulty, it always is recognized, and it never fails to awaken resentment. The nurse is inherently an agent of sympathy and mutual helpfulness. In this capacity she occupies a confidential relationship with the employees. If she permits herself to act as a spy, she is unworthy of this trust reposed in her. The company which encourages her to act as a spy is utterly failing in its sense of ethics.

## INCENTIVE

The word "incentive" brings to mind the thought of a particular reward for a particular performance. It is ordinarily interpreted in a financial sense by the person who thinks of it for the first time. Such incentives are wholesome influences for production when they are worked out fairly with due consideration of the fairness of the reward and the amount of effort the employee is able to give without impairing his own health and well-being. Chapter III cites various methods of compensation, such as piece-work, task and bonus, and so forth, as examples of this kind of incentive. Other financial incentives are created for services other than those involved directly in the performance of the work itself. Examples of such incentives are bonuses for attendance and promptness, for length of service, for bringing other persons into the company's employment.

The word "incentive," however, does not enjoy its full significance if it is restricted to its financial interpretation. Many incentives are of a non-financial nature. Of these, most find their opportunity for expression in the relationship which exists between the worker and his boss.

This brings us into the field of supervision which we have already discussed. A word of commendation for work well done is to many persons far more effective as an incentive than a monetary reward. Praise given, or praise withheld exerts a tremendous influence upon the interest of the worker, far more than the average executive appreciates.

But that form of incentive which is perhaps most effective throughout all industry is the assurance on the part of the employee that advancement and promotion depend directly upon performance. This calls for more than an assurance on the part of the employer that there is always room at the top and that you can't keep a good man down. It calls for more than an expression of policy that promotions are to be made from within and that those who show themselves qualified will be endowed, as the opportunity offers,

with greater responsibilities and opportunities. It calls for two separate and distinct things. First, the methods and technique by which the qualifications, merits, and performance of each employee are known, and known accurately. Second, the positive assurance on the part of the employee that through the use of such methods and technique, the management is *able to fulfil* its promise that advancement depends upon qualification and performance.

#### RATING AS AN INCENTIVE

An integral part of personnel administration in general and of this kind of incentive in particular is that found in the existence of an adequate method of rating, or judging, employees. In determining the abilities and capacities of individuals we must necessarily depend largely upon opinion. Opinion frequently is faulty. It is often formed on misinformation or upon external appearances. In more cases than otherwise, it is formed according to interest and prejudice. We are all apt to be more generous and lenient toward a person for whom we entertain high regard or affection. Similarly, we are inclined to be oversevere with those whom we do not like.

Because of these patent truths, implicit reliance upon the opinion of executives as to the abilities and Capacities of their employees is dangerous, unless the proper means is made available whereby those opinions may be formed as fairly as possible. Without such means, snap judgment is apt to take the place of deliberate appraisal. Personal likes and dislikes are apt, unconsciously, to lead to erroneous conclusions. The individual's natural inclination to judge others leniently or to judge them severely colors his opinions.

It has been found practicable to avoid much of the error which, through such sources as these, creeps into the judgment of workers by their superiors. Methods and instruments have been evolved which make it easier for the

executive to think of his subordinate in specific terms. By these methods the executive appraises him in one quality alone without, at the moment, considering him in other qualities. These methods and instruments help the executive to avoid those prejudices which otherwise are almost certain to influence his judgment. They make it possible to apply compensations for an executive's inherent tendency to think generously of his people on the one hand or to think of them with exacting severity on the other.

The Rating Scale idea was utilized during the war in the United States Army. All officers were rated in five separate cardinal qualities regarded by the General Staff as important. As we shall explain later, however, the army form of Rating Scale is generally inapplicable to business and industrial organizations. It is too cumbersome in use. It requires too much time and mental effort on the part of the foreman or executive who is under pressure getting out the day's work. It has been recognized that a different plan is necessary and to this end modern methods of rating employees have followed more generally the graphic principle as we shall explain. It makes it easy for the executive to rate his subordinates in those qualities which his particular institution regards as important.

We have said that the personnel situation in any company is fluid. Employees are changing and developing in Capacities and Interests. If this were not so, it would be sound practice to "appraise" an employee once in the qualities held as important and then permit that appraisal to form a permanent part of the company's records of his qualifications. Thus, if an employee were judged *fairly good* in Cooperativeness, he would rank as fairly good in Cooperativeness all the rest of his life.

This, of course, is absurd. We are all changing and growing—most of us, let us hope, for the better. Consequently, management appreciates the need for periodic appraisals in much the same manner as it appreciates the need for periodic physical examinations. A periodic appraisal held every six

months enables management to know the lines along which each employee is developing or failing to develop.

This procedure serves three primary purposes. First, it yields information about the particular characteristics of each employee in a degree which otherwise would be impossible. This information is made a part of the personnel records of the organization and is used in selection, placement, transfer, promotion, training, and compensation. In the second place, it teaches executives to think of their employees in a deliberate analytical manner; it leads them to avoid snap judgments. It serves to prevent some isolated instance of good or bad performance from coloring unduly the executive's judgment of the employee's general worth. In the third place, it impels the employee to exercise conscious effort in improving himself in those specific qualities deemed important by the management. The fog and uncertainty which beclouds the mental processes of workers with respect to their status in their companies is often not apparent to the management. The members of the management have so grown away from the viewpoint and habit of thought of the workers down the line that they have forgotten the discouragements, the gropings, the sense of futility which so often assail them. This kind of discouragement is largely the product of uncertainty as to what the management expects of them and as to the degree to which they are fulfilling such expectations.

It is refreshing to observe the reassurance with which employees react to such a plan when it is properly installed. For the first time they see in black and white certain specific qualities the management wants them to possess. Direction is given to their efforts for self-development. Their real objectives appear out of the mist.

Furthermore, they observe for the first time a practical instrument whereby their strengths and failings can be known to the management. The adoption of such an instrument will make little appeal to those who rely upon bluff to carry them through, but to the great majority of workers

it is a good omen, a sign that regardless of external appearances and in spite of their inability to "sell" their services, their actual merits are to be known to the higher command.

Here we have a distinct incentive. The employees know what is expected of them. They know that management is cognizant of the extent to which they do or do not possess such qualities. They are informed that the appraisals are periodic and they are stimulated to improve by conscious self-cultivation their record of capacities and abilities which is kept in the company's personnel department.

#### PERSONAL SERVICE

We have said above in relation to the follow-up that *personnel* work must be *personal*. There is need for a sensible contact between the management and the worker, supplementing that which exists through the ordinary channels of authority. Management cannot avoid this relationship nor should it wish to do so. A concern for which a person works should represent more in his life than merely the source of his pay envelope. It should represent an organized friendship to which he can turn in time of need. This association should never be forced on the employee, yet he should be led to feel that when troubles assail from whatever quarter, consultation and help may be had cheerfully.

Most companies recognize this opportunity for constructive association. That it calls for supreme common sense and tact is obvious. If financial aid is required, it must be furnished in such a way as to cause no feeling of embarrassment on the part of the worker. It must not offend his sensibilities nor pauperize him. If questions of a legal nature are troubling him, such as those involved in buying a home or dodging a loan shark, legal aid should be made available. If illness or death threaten, the company's medical department should be made available in meeting the emergency.

There are some of the more obvious channels through which personal service can express itself. There are many others. It is the policy of most concerns to encourage the employees to develop a social life of their own, either informally or through an employees' organization of one kind or another. Such social and athletic activities have much to do with the point of view of the employee toward his employment. When they are well organized, they undoubtedly exercise a stabilizing influence upon the work force.

Yet the dangers inherent in them are very near the surface. Management must watch its step. A sharp line should be drawn between company interest in such activities and company control. Any meddling in the administration of such activities by management is apt to offset their beneficial effects, even to cause antagonism and resentment. As in the case of the individual employee, management should stand ready to cooperate with its employees as a group in such ways as desired and in such ways as are sensible. The Personnel Department is the logical place for this contact between the company and the employees to take place. In unusual circumstances the officers and higher executives of a company can participate in such enterprises, but rarely so in their official and executive capacities. In such environment they are only employees, fellow-members of the employees' organization. And it is extremely doubtful if, even when exercising care in this respect, they can contribute much by taking a personal part in such projects. The employees find it difficult to separate their official selves from their personal selves and it is probable that their presence at such social activities causes restraint on the spontaneous intercourse of the employees—a restraint which otherwise would be absent.

#### SELECTION FOR TRAINING—TRAINING

Every company is confronted—although some may be unaware of the fact—with the necessity for developing high-

grade workers. Good management recognizes the importance of developing understudies. This involves a conscious policy of training.

We shall not at this point take up the detailed methods of carrying on training in business or industrial institutions. There are numerous ways in which this important function is carried out. Frequently special schools are maintained within the organization; sometimes working agreements are developed with nearby educational institutions in accordance with which the employees are enabled to secure the training they need. This phase of management, however, whatever form it may take, falls directly under the jurisdiction of the Personnel Department.

There is a close tie-up here between training as a function and selection as a function. We have spoken of the inadequacy of tests for determining special aptitudes. This fact to the contrary notwithstanding, there is a great opportunity for the use of certain instruments and for the exercise of good judgment in the selection of workers capable of learning this kind of work or that.

It is known, for instance, that mental alertness is a quality which is ordinarily found in those persons who are able to acquire knowledge and skill in higher types of clerical work. The person who is mentally alert usually has an acquisitive mind. Here is one obvious instance of an instrument effective in selecting persons for training. In our chapter on Methods of Training we shall discuss this at greater length and point out, for example, how one company in the Middle West came to use Mental Alertness Tests as a means of grouping workers in its factory schools with success.

The selection of workers for different kinds of training calls for special consideration of the *Interests* of the individual as well as his *Capacities*. The folly of attempting to train a worker in work in which he is not interested and for which he has no desire is apparent. Regardless of



his Capacities he is certain to develop into a mediocre worker at best.

#### WAGE DETERMINATION

Every company is confronted with practical difficulties in wage control. It finds itself constantly confronted with the dilemma of keeping its total wage expenditure within the sum available for the purpose and at the same time compensating its employees in such a way that their Interest and Capacities will be properly rewarded and stimulated. If it exceeds its budget, economic difficulties of a serious nature threaten. If it fails to compensate performance fairly, efficiency and production are reduced and labor turnover is encouraged.

The most wholesome means of meeting this dilemma is so to increase the merit of each individual's performance that the total volume of work can be done by fewer persons and each person compensated proportionately. It is generally recognized by more successful employers that a policy of paying higher wages to a relatively small number of employees is much more wholesome from every point of view than that of paying small wages to a large number of employees for doing the same work.

To achieve this, however, a high degree of personal productiveness must be created through such methods and policies of administration as are set forth in this book.

Furthermore, it involves an appraisal of the general value of each kind of work and of the specific value of each employee in that work. We must bear in mind our original definition of the worker-in-his-work. We must recognize that while the nature of the work done by an employee stamps a certain value on the worker-in-his-work unit, the effectiveness of the worker himself stamps another value and that the total value of the worker-in-his-work will be a composite of these two. It is coming more and more to be management's practice to evaluate the worker in certain

positions, and to form an idea of the effectiveness of the individual by carefully-thought-out methods which we are about to describe.

In determining the proper wage for an individual, we must bear in mind not only the actual value of that worker-in-his-work unit as revealed by both the value of the work and the value of the worker, but we must also bear in mind the *relative* value of that worker-in-his-work as against the values of other workers-in-their-work. A proper proportion and coordination must be maintained throughout.

We have discussed the general phases of personnel administration in this chapter in order that, as we proceed to consider the instruments and details of operation, we may have a better idea of the purpose and place of each. Now, few companies will be frank enough to admit that they are not performing these functions successfully, and it is true that a great many companies are carrying them on with a high degree of success. It is equally true that many are not carrying them on successfully, but do not know that they are failing to do so.

It is said to be impossible to make bricks without straw or impossible to build a house without tools. It is equally impossible to carry on these functions successfully without having first constructed the necessary records and instruments, without having first developed the procedure which utilizes them. Facts are essential to wise action. Effective personnel procedure, consequently, must be based upon facts as to the Capacities and Interests of the workers and as to the Opportunities in the work. During the past few years, the experience of industrial and business houses has yielded a fund of valuable information as to the form and nature of these instruments. Practical ways have been evolved whereby such instruments can combine efficacy and simplicity.

The construction of the instruments and records, however, is only half the battle. Many concerns possess such instruments and have developed such records but do not use them

effectively. A sharp chisel may be a fine example of the toolmaker's art. In the hands of a novice it will do a bungling job; in the hands of a skilled carpenter, it will do a good job.

The same principle is true of personnel instruments. A good personnel job requires adequate personnel instruments and records, but it also requires a staff of executives who are qualified by training and experience to use these instruments properly.

The next chapters will have to do with the construction of the instruments and with their effective use in increasing production, in cutting down labor costs and in serving the social well-being of employees.

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## VIII

### CONSTRUCTION AND DEVELOPMENT OF INSTRUMENTS AND RECORDS

Facts the only sound basis for action. Ascertaining needed facts as to the work. Ascertaining needed facts as to the workers. The relationship between the several instruments. Need for a thought-out procedure based on experience and research.

WE are now ready to direct our attention to the methods and instruments employed in personnel administration. In this chapter and those immediately following, we shall discuss the construction of these instruments. Subsequently we shall discuss their use.

The methods and instruments described throughout are not the only possible methods or even the best methods necessarily. They are however typical of the best and they are at least tried and proved instruments of successful personnel administration.

In the degree in which facts are essential to good judgment and to wise action, in that degree are such instruments as these essential to successful personnel administration.

Personnel administration is in its essence a constant adjustment and re-adjustment of workers to their work in such a way that each worker-in-his-work unit will be a healthy, highly productive unit in the organization. The Personnel Manager's job is never done. His job never will be done until all the men and women in the organization are so adjusted to their work that the elements of human happiness and productiveness are at the highest possible point. Naturally this is a millennium which is never even approached, for the reason already stated that the work in each position is changing, sometimes ever so slowly, but

changing nevertheless, and the Capacities and Interests of the workers are changing, sometimes slowly and sometimes rapidly, but always changing. So the Personnel Manager finds almost daily that certain worker-in-his-work units which were at high pitch but a few months or a few years ago are now but fractionally effective. The worker outgrows his work and sometimes the work outgrows its worker. Readjustment through training, incentive, transfer, promotion, and so forth, becomes imperative. The Personnel Manager must take action. To do so he must possess the actual facts as to the Capacities and Interests of the worker and as to the Opportunities and the requirements of the work in the positions throughout the organization. If he relies upon haphazard information or upon observation which is not searching and analytical, his success will be indifferent; in attempting to create an effective worker-in-his-work unit, he will probably create another which is no better.

#### THE NEED FOR FACTS AS TO THE WORK

If the Personnel Manager is to achieve success in the continuous readjustment of the workers to their work, he must have the facts in hand which will enable him to take such action intelligently. To have the facts in hand, he must have instruments and methods which will make them available.

Generally speaking, these facts are of two kinds—those pertaining to the work and those pertaining to the workers.

Facts with respect to the nature of the work in each position are ordinarily made available through the Occupational Description.<sup>1</sup> This is essentially a bird's-eye view of the occupation in terms of its duties, working conditions,

<sup>1</sup>This instrument is frequently referred to as the Job Analysis, but the term Occupational Description is preferable. The reason for this is that the word *job* is not synonymous with that of *occupation* or *position*, but is in fact a specific task within the occupation or position, at which the worker may be temporarily engaged. Thus a man engaged in the occupation of common laborer may be given a job of hauling a certain crate of merchandise to a certain warehouse, or a girl classified in the occupation of file clerk may be given the job of arranging a certain batch of cards in

opportunities and in terms of the Capacities and Interests required in its performance.

The form of the Occupational Description will vary from company to company. There is no stereotyped manner of presenting this information. The particular requirements of the company itself must be the guiding influence in the organization of the facts. The *method* of securing the information, however, is more subject to standardization and in our next chapter we shall discuss this in detail.

Suffice it to say, however, that the Occupational Description for each position should include a statement of duties (in general terms rather than in specific details); a statement of hours, probability of overtime, vacation, and so forth; a statement of the experience required and of the further experience which it is desirable for the incumbent to possess if possible; a statement of the education required and of the additional education desirable; a statement of the specific training required and of such further training as is desirable; a statement of the personal qualities an individual should possess in order to fill the position adequately; a statement of the opportunity for advancement; a statement of the compensation paid for performance of the work; and a statement of the best sources of supply through which persons can be procured to do the work.

#### THE NEED FOR FACTS AS TO THE WORKER

On the other side of the equation, we require information as to the Capacities and Interests of the worker. This information regarding the person is ordinarily recorded on the Qualification Card which is similar in principle to that utilized in the army during the war, but which necessarily must be elaborated and adapted to the needs of each com-

chronological order. Furthermore, the word "analysis" is misleading. It suggests that kind of analytical study of the details of operation which is required in a time study. The true Occupational Description is concerned with the general duties of the worker not with the minutiae of their performance.

pany. The Qualification Card is a cross-section of the individual in terms of his Capacities and Interests. It reveals all those known personal qualities and attributes which will affect the worker's effectiveness in this work or in that. It gives the salient facts as to his schooling and education; his previous business history; his physical qualities with respect to appearance, health, strength, and so forth; his special abilities; his special interests, in so far as they can be discovered; his personal qualities (judgment, enterprise, initiative, cooperativeness, and so forth); his capacity for development and growth.

The information for the Qualification Card is secured through various sources: the interview, the physical examination, performance tests, the rating scale, mental alertness tests, and so forth, each of which will be discussed separately in its own chapter. It is well for us to bear in mind the relation between these several specific instruments and methods and the Qualification Card which is the repository of the varied information which they yield about the individual.

The Occupational Description on the one hand and the Qualification Card on the other, consequently, become the two major records by which the necessary facts are made available in maintaining the well-balanced adjustment of the workers to their work throughout an organization. These two records are used daily in personnel department procedure as we shall point out in later chapters.

These two records form the basis upon which the Personnel Control Chart is built. The Personnel Control Chart is an instrument by which the personnel situation within a company is shown *in toto*. Every individual employee appears on it. It shows his occupation, it shows his salary, it shows if in any way he is not well adjusted to his work, if there is need for consultation, for transfer, for training, for promotion, even for dismissal.

The Personnel Control Chart points out those individuals in the organization who are effective in their work. It points out those who are not so effective and who consequently con-

stitute problems calling for the attention of the Personnel Manager.

The relationship between these various instruments is shown in Figure 12.

Another instrument not shown in this graph is the Pro-

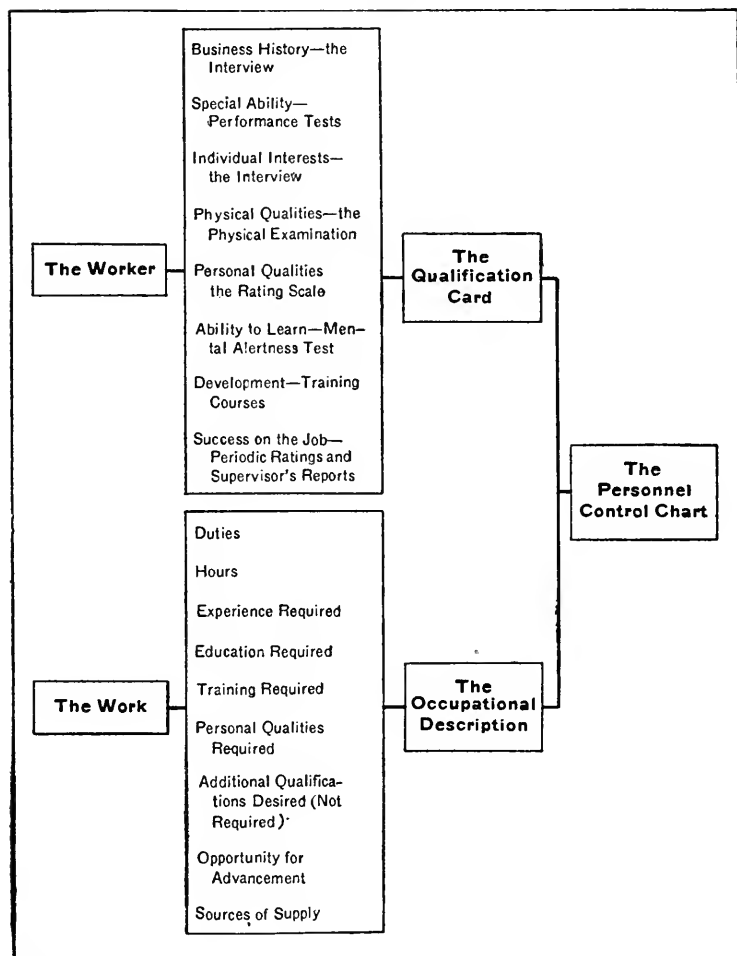


Figure 12: Chart showing the relationship between the several instruments used in personnel control



motional Chart which is based on the information contained in the Occupational Descriptions relative to opportunities for advancement. We have discussed in previous chapters the importance of the Promotional Chart as an instrument in developing incentive and morale. The Promotional Chart is a birds'-eye view of the avenues of advancement which exist throughout an organization from the humblest position up through the intermediary ranks to the higher command.

The utilization of the three major instruments: the Qualification Card, the Occupational Description, and the Personnel Control Chart, makes it possible for management to answer such questions as the following with assurance:

(a) What are the requirements of this position? Of that?

(b) What kind of training should be given a person being groomed for this position? For that?

(c) What are the standards of success in this position? In that?

(d) Which employees are succeeding in their work? Which are not?

(e) Which persons in the organization are now qualified for this work? For that?

(f) Which persons can best be trained for this work? For that?

(g) What are John Jones' qualifications? Mary Smith's?

(h) Richard Doe, an efficient worker, is outgrowing his job. Where can he be transferred or promoted to best advantage?

(i) Edward Roe is not succeeding at his work. What is the cause? What is the remedy?

(j) Elsie Brown is recommended for an increase in salary. In view of the value of the work assigned her, of the quality of her service in that work, of its effect on other employees, is the increase justified?

(k) Is the cost of doing the work of this position (e. g meter-reading, filing, and so forth) normal, or below estimate, or too high?

This kind of detailed information is obviously of great value in making individual adjustments and readjustments of workers to their work. It goes further, however. It is essential in developing the broader aspects of personnel administration. These instruments play a mighty part in the effective cultivation of these important functions of management:

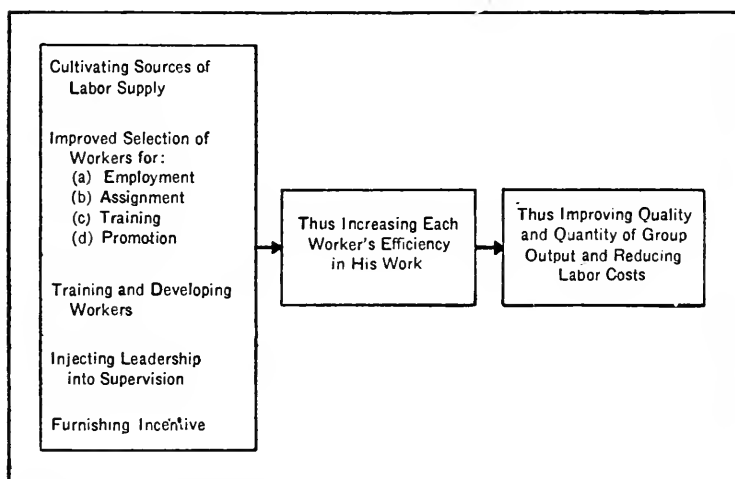


Figure 13: Chart showing the value of utilizing the Qualification Card, the Occupational Description, and the Personnel Control Chart by the Personnel Manager

This introductory chapter to the instruments of personnel administration would be incomplete if it did not stress two facts.

First, every employer, every business house takes a strange pride in the fact that its business is "different." This difference is usually a very real one. Every company has its own history, its own traditions, its own problems of administration and production. Because this is so, it is

usually impossible for one concern to borrow bodily the methods and instruments used by another concern. Many employers made this mistake at the close of the Great War in attempting to borrow the personnel procedure bodily from the army.

It is true that, regardless of the nature of the business, regardless of the product, regardless of the conditions of manufacture, the principles of personnel administration which underlie the construction and use of these instruments are uniform. These principles are basic and sound wherever the relationship of employer and employee exists, but they must be interpreted by each concern in the light of that concern's particular situation. For these reasons, it is necessary for each concern to develop its own instruments of personnel administration by adaption rather than by adoption.

In the second place, it is impossible overnight to construct these instruments or to develop the procedure based on them. They require the same effort, the same penetration of thought as the most abstract technical problem. Slipshod methods will not suffice. The practice, for instance, of securing information for the Qualification Card and for the Occupational Descriptions by issuing questionnaires to the employees, will not suffice to make those instruments effective in operation. The questionnaire method is presumably the cheapest method in terms of time and expense, but it is known to be woefully expensive in terms of results. If the personnel instruments and the procedure based upon them are to be really effective, they must be well done. Money and time saved at the expense of effectiveness is poor economy.

In the coming chapter we shall discuss the technique and procedure of constructing the Occupational Description, and in later chapters we shall discuss the use of the Occupational Descriptions in administration.

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## IX

### CONSTRUCTING THE OCCUPATIONAL DESCRIPTION

Definition of an occupation. The interview vs. the questionnaire. The content of the Occupational Description. Procedure in getting the facts. The work-sheet. Various degrees of supervision required. Qualifications required and desired. Evaluating the factors affecting compensation. The progress chart. Preparing the final draft.

ANY consideration of the Occupational Description must be based upon an agreement as to what constitutes *an occupation*. We have pointed out that an occupation and a job are two different things. A job is a specific task within an occupation.

*Let us assume as a definition, consequently, that a specific occupation or position is a continuing assignment sufficiently unlike all other assignments that the transfer of an experienced worker to that assignment from another assignment would involve special training rather than simply casual instruction or sufficiently unlike other assignments that the conditions surrounding the performance of its duties involve unusual mental or physical strain, unusual difficulty, or unusual unpleasantness in performance.*

Unless one assignment differs from another then in the amount and kind of training involved or in strain, difficulty, or degree of unpleasantness, those two assignments may be regarded as the same occupation or position.

The Occupational Description is a condensed picture of the occupation in terms of those factors which affect the worker. It is not ordinarily a record of details. It is to be used in establishing a mutual understanding between the department chief and the personnel manager with respect to the duties of the occupation and the kind of person needed

to perform those duties effectively; it is to be used to acquaint the new employee with the nature of the work to which he is to be assigned; it is to be used in selecting persons for the position both from without the organization and by transfer within; it is to be used in setting the salary limits for the occupation and for evaluating its importance to the organization in dollars and cents. On the other hand, it is *not* to be used, primarily, in laying out a training program, in teaching the new worker the specific operations involved, in setting piece-work rates, in establishing the "one best way" of doing the work.

Because its function is to serve the objectives outlined here, the Occupational Description ordinarily does not go into infinite detail. We are concerned with the kind of person needed to do the work right and of course with the duties which he is to perform, but we are not concerned with the minutiae of their performance.

#### THE CONTENT OF THE OCCUPATIONAL DESCRIPTION

Before we proceed to a description of the methods of constructing the Occupational Description, let us consider the kinds of facts which it should ordinarily reveal. Briefly, the content of the Occupational Description might be summarized as follows:

##### DESCRIPTION OF THE WORK

1. Name of occupation and location. Its symbol in the occupational code, or indexed list of occupations in the organization. Alternative names in use. Names of allied occupations from which a worker could be transferred with little additional training. Names of the divisions, departments and units where it exists. These entries might be regarded as the *identifying* entries.

2. Statement of duties. Here is given a brief description of the *functions* performed by the employee rather than the detail of how he performs those functions. His responsibilities are described, such as those for the custody of funds, for supervision of other workers, for training subordinates, and so forth. A state-

ment is made of the machines, tools, and materials used which involve some special ability or skill on the part of the worker; here, for instance, would be mentioned a drill press or a typewriter, but not a broom or time stamp.

### 3. Conditions of work

- |                                   |   |
|-----------------------------------|---|
| (a) <i>Location</i>               | Factory, office, inside, outside, overhead, underground, solitary, gang, and so forth   |
| (b) <i>Time</i> ✓                 | Permanent, temporary, day, night, hours of labor, probability of overtime, peak loads, uniformity of work, and so forth   |
| (c) <i>Posture</i> ✓              | Standing, sitting, stooping, walking, climbing, reaching, lifting, and so forth   |
| (d) <i>Speed</i>                  | Quick, moderate, slow   |
| (e) <i>Accuracy</i>               | Coarse, fine, exacting  |
| (f) <i>Degree of Automaticity</i> | Varied, routine, monotonous   |
| (g) <i>Health Hazards</i>         | Ventilation, illumination, nerve strain, eye strain, physical strain, (heavy, medium, light), moisture, heat, dust, humidity, fumes, acids, exposure to weather |
| (h) <i>Accident Hazards</i>       |   |
| (i) <i>Disagreeable Features</i>  | Dirt, noise, oil, and so forth  |

### 4. Pay

- |                             |  |
|-----------------------------|--|
| (a) <i>Method</i>           | Monthly, weekly, bi-weekly, daily, hourly, piece rates |
| (b) <i>Rate</i>             | Range of pay from minimum to maximum                   |
| (c) <i>Bonuses Premiums</i> |  |
| (d) <i>Penalties</i>        | For absences, tardiness, infringement of rules         |

5. Relation to other occupations: names of those other occupations naturally leading to this one and names of those higher positions utilizing experience gained in the occupation described; lines of promotion

## 6. Sources of Supply

## DESCRIPTION OF THE WORKER

## 7. Sex

## 8. Race

## 9. Nationality

## 10. Age—Minimum, Maximum

11. Physical Qualities—Height, weight, strength, eyesight.  
Physical impairments permitted

12. Education—Common School, number of years required and desired. High School, number of years required and desired. College, number of years required; Degree Business School training; Technical Training

13. Experience—Former employers—years of service with each; kind of work done

## 14. Skill—Trade or kind of work

## 15. Language Ability

(a) English—Read, Write, Speak

(b) Other Languages

## 16. Personal Qualities

(a) Appearance and Manner

(b) Leadership

(c) Cooperativeness

(d) Initiative

(e) Ability in Developing Men

(f) Accuracy, and so forth

(g) Judgment

This table suggests the content of the Occupational Description in the average company. It must, however, be regarded as elastic. The nature of the company and its work will have an effect upon the desirability of many of these items. It may even be possible in certain instances to omit one or more. Unless exceptional conditions prevail, however, an effective Occupational Description will cover adequately the points mentioned in this list.



## PROCEDURE IN GETTING THE FACTS

Many concerns attempt to obtain the information for the Occupational Descriptions by issuing questionnaires to the workers in the various occupations and to the executives under whose jurisdiction the occupations fall. This method is not usually satisfactory. It depends entirely upon first, the willingness of the individual to furnish the data; second, upon his possession of the facts; and third, upon his ability to present them in the right way. Experience has shown that the average worker who is not cognizant of the exact purpose of the Occupational Description and who is unaware of the need for exactness in his information will answer the questions without giving them the careful thought which they require. Even when certain individuals conscientiously give such a questionnaire their best effort, they are apt through ignorance of its nature and purposes to lay too much emphasis on one aspect and too little emphasis on another. The result is that such questionnaires, while they seem at first to offer the simplest and least expensive method of procuring the facts, usually yield data which are misleading and which involve such careful re-analysis and study that the expense saved in procuring them is more than lost in interpreting them.

It is recognized, indeed, that if Occupational Descriptions are to be made at all they must be made well and that management must be willing to invest properly in their construction. Their importance justifies it. It is becoming recognized in greater and greater degree that the construction of an adequate Occupational Description for a given position necessitates a personal interview with the workers who are engaged in that work by an interviewer who is qualified by intelligence and tact and who is trained in the technique of securing the essential facts. Where it is possible for the Personnel Manager to do this himself, the practice is of course desirable as he thereby comes in personal contact with the work and is enabled personally to

observe its nature and requirements. The average Personnel Manager, however, is far too busy to do this by himself. He is compelled, consequently, to train a staff of interviewers to do it for him.

Too great emphasis cannot be laid upon the need for care in the selection of the interviewers. In the first place, each interviewer should be a person of general intelligence and power of analysis. He should be able to grasp the principles underlying personnel work, to understand the specific objectives of the Occupational Description and to ask his questions and make his observations accordingly. He must be able to sift the facts of each occupation, setting aside those which are unimportant and unessential and retaining those which are pertinent in the description of the occupation and of the worker. He must possess confidence in himself and in the importance of his mission and he must have that kind of personality and exercise that degree of diplomacy and tact which will enable him to enlist the worker's interest in the enterprise, sell the idea of the Occupational Description to him, and awaken in him a desire to furnish a true picture of his work.

Great care must be given to the training of the interviewers. It is customary to hold "school" before the work is started. Before each interviewer proceeds to visit the workers on the job in order to secure the desired data, he must be given a full understanding of the principles of the work in general, of the specific objectives of the Occupational Descriptions and of the technique of securing the information and writing it into an Occupational Description.

In beginning the work, it is necessary at the outset to make some rough classification of the occupations in the organization, assigning to each occupation the workers who are apparently engaged in it. This information, if it can be called such, is usually in the possession of the Payroll Department. No matter how little real thought has been given to the classification of the workers, there is inevitably some tentative classification in effect which is used as the basis

for wage rates. Where a conscious attempt at classification has previously been made, more reliable information will, of course, be in hand. Whether the probability of accuracy in these existing classifications is great or small, it is recognized as good policy to assume that *what is* is right until investigation indicates those ways in which it is wrong.

Before the interviewers proceed to secure the information with respect to the various occupations in a company, it is good practice, therefore, for the Personnel Manager to have a list prepared of the employees in the organization classified according to the occupations so far as they are known at that time. With these listings in hand, it is possible to direct the efforts of the interviewers more effectively.

When this list has been prepared, it is important to adopt arbitrarily a simple numerical code through which a definite symbol number is assigned to each occupation. The value of this device will become apparent on a moment's thought. The interviewers are about to make a study of something which as yet is nebulous and unknown. Preconceived ideas of the various positions are to be subjected to an unwonted strain. Management's conception of the content of various jobs is to change radically. It is to be found in many cases that the accepted occupational titles are inadequate and in cases, misleading. In the construction of the Occupational Description these titles will change as well as the knowledge of the job content. Everything then is variable. It is apparent, consequently, that with occupational titles and occupational content subject to change and revision, great difficulty will be encountered in maintaining the identity of the occupation throughout its analysis and redefinition, unless some unvarying, unchanging symbol is employed to mark it. This is the original purpose of the occupational code number.

The code numbers themselves, once assigned, never change. But the code itself must be capable of expansion and revision. As the interviewer proceeds to analyze the work of a number of employees who apparently are classified

alike, he may readily find that part of them are doing one kind of work, part another. In this case the necessity for creating new classifications is apparent. These new classifications must in their turn receive identifying symbols in the numerical code.

The code number, incidentally, continues to be a valuable device even after the Occupational Descriptions have been completed. Eventually it serves a useful purpose in administrative work involving the use of the Occupational Description. This will be explained in the proper chapter.

#### THE WORK SHEET

At this point in our discussion of the procedure of getting the facts, it is necessary to describe the Work Sheet. This is an essential instrument for the interviewer. At one time it was regarded as good practice to prepare the Occupational Description as a sheet of paper bristling with boxes in which check marks were entered to indicate certain facts about the occupation; for instance: Factory Work; Office Work; High School Education required; Common School Education required; Sex; Nationality. This kind of Occupational Description is easy to make, too easy in fact, for it often leads to a superficial consideration of the facts of the occupation.

When this truth became apparent, the tendency seemed to swing in the opposite direction. Attempts were made to prepare the Occupational Description in essay form in which the check mark was noticeable by its absence. This form of Occupational Description was difficult to construct. There was a strong tendency to overlook certain facts. It was hard to use.

Modern practice favors the use of the Work Sheet as an instrument on which to record the facts as they are learned by the interviewer, before he proceeds to write up the Occupational Description in its final form.

In Figures 14a, 14b, 14c, and 14d is reproduced a typical Work Sheet. When the interviewers have received their pre-

OCCUPATION <u>AUTO MECHANIC</u>	*Symbol <u>1622</u>
*Other titles in use <u>Auto Mechanic, Garage Helper</u>	
*Occurring in Sections <u>Repair Shop, Garage</u>	
*Sub-occupations <u>Auto Mechanic (?)</u>	
*Occurring in Sections <u>Electrical Shop</u>	
<b>A</b> Branches <u>                    </u>	
Units <u>                    </u>	
*Addenda <u>                    </u>	

OCCUPATIONAL DATA SHEET

\*Statement of (a) duties, (b) responsibilities, (c) tools and equipment, (d) working conditions:

(a) **B** Does general overhauling, also has to drive and test cars. Works on all makes of cars, but particularly on Dodge and Cadillac topping cars and trucks, Standard 8 and P.H.C. trucks. Also overhauls and repairs ignition units. Also generators. Has to repair motors and keep them in running condition. Works under direction of foreman.

(b) Responsible for condition of cars and trucks. Poor work may cause loss and endanger life.

(c) Has to know how to weld with acetylene torch. Lacks reamer and valve reader. All customary garage tools.

(d) In garage. Concrete floor. Frequently cold, especially in winter. He has just practically all day. Has to crawl under cars to make many repairs.

Figure 14a: Page 1 of Typical Work Sheet

liminary instruction in the technique of constructing an Occupational Description, the occupations appearing on the index (referred to above) are assigned to the various interviewers according to their special qualifications and their personal interests. It is always well to assign to an interviewer those

MINIMUM REQUIREMENTS.	
<b>Physical Requirements</b> <b>C</b> "Strength <u>B to C</u> "Weight <u>140 lbs</u> "Height <u>5'10"</u> "Eyesight <u>Good</u> "Other qualities <u>keen hearing</u> "Reason <u>Classes allowed. Hearing necessary to diagnose motor trouble</u>	
<b>Education</b> Post-Graduate Work College High School <input checked="" type="checkbox"/> Common School "Degree <u>None</u> "Subjects required <u>None</u> <b>D</b> "Reason <u>Must be able to make out tire slips and read written instructions</u> "Equivalents <u>None</u>	
<b>Special Training</b> "Subjects required <u>None required</u> <b>E</b> "Reason "Equivalents	
<b>Experience</b> <b>F</b> "Nature <u>Practical experience in garage or repair shop</u> "Reason <u>Will shorten his learning period</u> "Equivalents <u>Will accept 6 mos. special training or 1 year as mechanic apprentice</u>	
<b>Technical Skill</b> Trade <u>None required</u> Journeyman Apprentice None <b>G</b> "Reason "Equivalents	
<b>Personal Qualities:</b> "S (M) E "M F E "Age <u>18 to 35</u> "Race <u>Am.</u> "Citizenship <b>H</b> "Judgment" Unfailing Errors cause personal danger Good Errors cause money loss Average cause confusion None "Kind and reason <u>He must be headed to diagnose trouble</u>	
<b>Creative Ability</b> Highest Originality Average Initiative None "Kind and reason	
<b>Supervisory Ability</b> "Characteristics of force "Mechanical experience is essential owing to "Familiarity of motor adjustments	

Figure 14b: Page 2 of Typical Work Sheet

occupations in which he takes a personal interest and with respect to which he has some fundamental knowledge. The personal Capacities and Interests of the interviewers, therefore, must be carefully considered in making these assignments just as these factors must be considered in making

ADDITIONAL QUALIFICATIONS DESIRED.											
<p><b>I</b> <sup>Physical qualities</sup> <i>Should be free from tuberculosis tendency</i>  <sup>Reason</sup> <i>Large floor is cold. Tires of exhausts</i></p>											
<p><b>J</b> <sup>Post-Graduate Work</sup> <sup>College</sup> <sup>High School</sup> <sup>Common School</sup>  <sup>Education</sup> V IV III II I C IV III II I O IV III I I E 8 7 6 5 4 3 2 1 None  <sup>Additional subjects desired</sup> <i>Manual training</i>  <sup>Reason</sup> <i>U.S. education will help him assume supervisory duties</i></p>											
<p><b>K</b> <sup>Special Training</sup> VI V IV III II I  <sup>Additional subjects desired</sup> <i>Auto. repairing. Apprenticeship as machinist</i>  <sup>Reason</sup> <i>Will be accepted instead of one year of practical experience in garage or repair shop</i></p>											
<p><b>L</b> <sup>Experience</sup> V IV III II I 10 9 8 7 6 5 4 3 2 1 None  <sup>Nature</sup> <i>Two years experience in the same work is desirable if possible</i></p>											
<p><b>M</b> <sup>Technical Skill</sup> <sup>Trade</sup> <sup>Apprentice</sup> <sup>None</sup>  <sup>Trade</sup> <i>Auto mechanic</i>  <sup>Reason</sup> <i>Will shorten training period</i></p>											
<p><b>N</b> <sup>Personal Qualities</sup> <sup>Age</sup> <i>18</i> <sup>to</sup> <i>40</i> <sup>Race</sup> <sup>Citizenship</sup>  <sup>Judgment</sup> <sup>Unfailing</sup> <sup>Good</sup> <sup>Average</sup> <sup>None</sup>  <sup>Errors cause personal danger</sup> <sup>Errors cause money loss</sup> <sup>Errors cause confusion</sup>  <sup>Kind and reason</sup></p>											
<p><b>Creative Ability</b> <sup>Highest</sup> <sup>High</sup> <sup>Average</sup> <sup>None</sup>  <sup>Initiative</sup> <sup>Originality</sup> <sup>Initiative</sup>  <sup>Kind and reason</sup>  <sup>Other qualities</sup></p>											

Figure 14c: Page 3 of Typical Work Sheet

an assignment of anyone to his work. It is desirable, however, to refrain from assigning to an interviewer an occupation with which he is intimately familiar. Experience has shown that when a person proceeds to write an Occupational Description of his own work or of other work with which





When the assignments have been made, a clerk enters the names of the workers assigned to each occupation on the index on the reverse of the Work Sheet. See Figure 14d, above. A definite line of attack is now open to the interviewer. Point is given to his effort. Here are the workers from whom he is to get the information, which, entered on pages 1, 2, and 3 of the Work Sheet, will enable him afterwards to write up the Occupational Description. The Work Sheet, consequently, acts as a check list to insure that all the essential facts are covered in the investigation. It is not, however, permitted to usurp the place of the Occupational Description itself.

The arrangement of the Work Sheet is largely a matter of personal preference. Because the Work Sheet reproduced in this chapter, however, has demonstrated its practicability, let us consider it as a typical example in our study of Work Sheets in general.

In Section A are entered the name of the occupation and its code symbol before the Work Sheet is handed to the interviewer. In this section, the interviewer indicates the Departments and Sections in which the occupation occurs as his investigations yield that information.

Section B is utilized to enter the description of the position itself, specifically in terms of the duties and functions involved, the principal responsibilities which rest upon the incumbent, the tools and equipment utilized in the work which requires special skill and knowledge, and lastly, the conditions under which the work is done.

In describing the duties, it is necessary to bear in mind that what is desired is not a recapitulation of detail, but a *statement of function*. We are concerned with the work the employees do, not with the minute hows and wheres of the doing. Great brevity should be shunned in this statement of function; it usually leads to a sketchy and incomplete statement of the essential information required in writing up the Occupational Description. On the other hand, redundancy is equally to be avoided as it usually leads to the recital of

unimportant details. This paragraph is usually prefaced by a small *a* in the margin to tie it up with the word "Duties" in the heading.

Next the interviewer enters a simple statement of the kinds of responsibility the worker is compelled to assume in his work, prefacing it with a marginal notation *b*. This provision has reference to such responsibilities as that for the custody of money, as that for the custody of property, as that for safeguarding the life and safety of others, as that for the supervision and training of subordinates.

In the next paragraph, prefaced *c*, are named briefly the tools and equipment, used in the performance of the task, which require special experience and training. It is unnecessary, of course, to cite those simple implements which anyone can use, such as a time stamp or hatchet. Those tools, on the other hand, which do require special skill and knowledge should be unfailingly mentioned, as they have much to do with the qualifications required in the worker; the interviewer, for instance, would make reference to such instruments and tools as typewriter or acetylene welder.

Finally, the interviewer enters, after *d*, a brief description of the working conditions under which the duties of the position are performed. The management is interested, for instance, in knowing whether office or factory positions prevail, whether in the former the light is bad and the office congested, and whether in the latter gases, noise, danger, and so forth, are present. This part of the statement should give a picture of the employee at work. It is especially important as later, in the Occupational Description, it will have considerable effect upon selection and placement. We have mentioned on page 135 the kinds of working conditions that should be considered here.

The interviewer is now in a position to consider the Capacities and Interests required in the worker. Pages 2 and 3 (Figures 14b and 14c) of the Work Sheet are reserved for this purpose. On page 2 (Figure 14b), Sections C, D, E, F, G, and H are for those entries which have to do with

*minimum requirements*, those qualifications which the worker *must* possess in order to be considered for the position at all. On page 3 (Figure 14c), Sections I, J, K, L, M, and N, are for those entries which have to do with those qualifications which it is desirable for the employees to possess *in addition* to those minimum qualifications specified on page 2 (Figure 14b). The similarity in the appearance of these two pages is obvious. They are arranged in this way in order that the interviewer may consider each factor separately (such as special training) and determine in conference with the employees on the job and with their superiors, the degree to which each factor is essential and the degree to which it is further desirable. Under eyesight, for instance, the interviewer may indicate on page 2 (Figure 14b) that for a certain position perfect color sense is *required*. On page 3 (Figure 14c) he might indicate that in addition to possessing perfect color sense, it is desired for good reason that the worker be free from the necessity of wearing glasses.

In this connection it should be emphasized that every fact entered by the interviewer on these two pages should be substantiated by a *good reason*. It is in this respect that the customary check-list falls down. If perfect color sense is required, the interviewer should state the reason briefly, but adequately, in the space provided for it. There are two purposes for ascertaining and giving the reason in each case: in the first place, it insures that the requirement stated is a genuine one, not a fictitious one; it is so easy when fatigued or when working under pressure to accept a statement as fact when, in fact, it has not been substantiated. In the second place, the statement of reason clarifies the meaning of the requirement itself. If we know, for instance, that perfect color vision is needed to match yarns rather than to recognize railway signals, a special significance is given to the entry.

In Section D, the interviewer indicates by a check mark on the top line the amount of schooling the worker must have had to qualify for the position. On the top line in Sec-

tion J, he enters another check to indicate the education which it is desirable for the worker to have had, over and above that specified by the check mark in D. Provision is also made for entries showing the collegiate degree, if any, the worker should have won and the subjects in which he should have specialized. The reasons such degrees and subjects are required and desired are given, as indicated above, in the space provided for them.

In similar manner the interviewer records under E and K the years of special training the worker should have had, the subjects he should have studied and the reasons for such special training. In F and L the extent and kind of experience will be shown and in G and M the special or technical skill that is required and desired in the occupation.

In H and N the interviewer indicates those personal qualities and characteristics which are important in the work. S M E has reference to his marital status—Single, Married or Either. M F E has reference to sex—Male, Female or Either. Age, Race and Citizenship are self-explanatory. Along the appropriate lines he enters checks indicative of Judgment, Creative Ability and Supervisory Ability and in the spaces at the bottom of the page the interviewer describes such other personal qualities as are important in the work.

All this information the interviewer obtains by personal conference with the workers on the job and with their superiors. It is proper here to enter a word of warning. Everyone has the natural tendency to overemphasize unessential characteristics of his duties and sometimes to lay undue stress upon their importance. This is seldom done consciously. It is the result of such intimate knowledge of the details of the work and such familiarity with all its ramifications that a true sense of proportion has been lost. This tendency on the part of the persons to distort the information they give about their occupations creates the necessity for very great care on the part of the interviewer to use his

own judgment in sorting and evaluating the facts given him by the employee. The interviewer must appraise such facts in the light of his broader knowledge of the nature of the work in other positions in the organization as well.

Wherever possible, it is desirable for the interviewer to talk with all the workers in each occupation. At times it is not imperative that he do so. Some occupations are so standardized, such as common labor, that interviews with relatively few of the employees in a group will yield sufficient information to prepare the Occupational Description for the group as a whole.

#### WRITING THE OCCUPATIONAL DESCRIPTION

When the interviewer has completed the Work Sheet, he proceeds with the preparation of the Occupational Description itself. Like the Work Sheet, the form of the Occupational Description is largely a matter of personal preference. Figure 15, reproduced on page 150, however, has demonstrated its effectiveness in use and we shall, consequently, make it the basis of our discussion.

The interviewer has now returned from the office or shop where he has secured the needed information and made the proper notations on his Work Sheet. He is now prepared to write the Occupational Description. Accordingly at the top, opposite the word "Occupation," he enters the correct occupational title. In selecting this title he uses the nomenclature already in effect if it is properly descriptive of the nature of the position. It is always well to adopt the titles in use, if possible. The members of the organization have naturally become familiar with such titles and their continuance involves no change in habit of thought on their part. If, in a given case, however, the title in use is not descriptive, the interviewer creates one which is truly descriptive of the nature of the position, making sure, however, that it does not conflict with any title already in use

Prepared by Harrison										Symbol-193														
Date August 10, 1923																								
Occupation <b>AUTO MECHANIC</b>																								
Occurring in:										SECTIONS					BRANCHES					UNITS				
										Maintenance					Garage					Repair				
MINIMUM REQUIREMENTS																								
Ed	Exp.	Jos.	Ar.	S.A.	Phys.	W.K.E.																		
D	C	E	D	F	B	E																		
<b>Duties</b>  <b>Hours</b>  <b>Minimum Qualifications</b>  <b>Additional Qualifications Desired.</b>  <b>Working Conditions</b>  <b>Principal Lines Of Promotion</b>										<p>The automobiles and trucks used by this company are kept in condition in the Garage Branch of the Maintenance Section.</p> <p>Under direction, the auto mechanic overhauls, repairs and operates such standard machines as the "Dodge" and "Cadillac" touring cars and "Mack", "Standard B" and "G.M.C." motor trucks. He tests, overhauls and repairs motors, generators and ignition units. He does acetylene welding and uses such tools as lathe, reamer and valve reader.</p> <p>7.45 a.m. to 11.30 a.m. )          11.30 a.m. to 12.15 p.m. Lunch ) Monday to Friday          12.15 p.m. to 4.30 p.m. )          7.45 a.m. to 11.45 a.m. Saturday</p> <p>The Auto Mechanic must have graduated from common school and in addition, he must have had three years practical experience in a garage or automotive machine shop as repairman. In lieu of one year of practical experience, six months special training in auto-repairing or one year as machinist apprentice will be accepted. Man, 18 to 50 years of age.</p> <p>The Auto Mechanic should be physically strong, capable of occasional heavy lifting. He should have good eyesight in order to do close work and make fine adjustments, although glasses are permitted. Keen hearing is also desired in order to enable him to test motors by sound.</p> <p>Accuracy is important in this work as errors may cause delay and impair work</p> <p>Garage with concrete floor. The worker is on his feet about half the time. Much of his time he is in a crouching or prone position incident to repairs underneath the cars. The Auto Mechanic is outdoors part of the time, especially when testing machines on the road.</p> <p>From: Truck Driver 190, Chauffeur 189, Mechanic's Helper 062.          To: Garage Superintendent 193, Engine Mechanic 192.</p>														
Approved by <u>J. C. Davison</u> Ch. of Sect. <u>P. H. McFaul</u> Ch. of Br. <u>J. H. Marsh</u> Dir. of Pers.																								

Figure 15: Face of Typical Occupational Description Sheet and that it is uniform and harmonious with other occupational titles.

In the upper right-hand corner he enters the symbol number.

Immediately under the name of the Occupation he enters those departments and units in which the Occupation occurs.

The word Duties is then entered in the margin. It is advisable here to enter in a sentence or so a brief statement of the purposes and functions of the department as a whole to serve as a preface in order to give the specific description of the Occupation its proper setting. After this introduction the interviewer proceeds to a complete, concise statement of the functions of the position based upon his rough record of duties in the Work Sheet but freed from the redundancy, and errors in expression, which are natural in such a statement prepared on the job at the moment of getting the information.

Early in this statement he uses a phrase indicating the amount of supervision the position requires. The following phrases are found valuable in the achievement of this purpose:

*Immediate Supervision.* The degree of supervision that an apprentice, a clerk learning office routine, or a copyist draftsman receives. It is not expected that the employee will use much initiative, and this faculty is watched until the supervisor is sure it is being used in the right direction. Immediate supervision involves close watch over all the specific details in the work—what duties are performed, how they are performed, step by step.

*Supervision.* The degree of supervision that a new clerk would receive after the first uncertainty is over, and the supervisor feels that the clerk is "catching on." Supervision does not involve so close a watch over *specific* details, but general phases of the work are controlled by constant reference to the supervisor for advice and decision.

*General Supervision.* The degree of supervision flowing from foreman to journeyman. The worker here begins to assume his share of responsibility. He is supposed to know the mechanics of his job and exercise that knowledge without advice or spur. The means of accomplishing a given object is usually left entirely to the worker.

*Direction.* The degree of supervision exercised over a trained worker by his administrative chief or section head. A definite object is set, and the worker is left to go ahead, in conformity with policies with which he has no recommendatory connection. It is

expected that there will be need for frequent conference both as to the general phases of the work and specific details.

*General Direction.* The degree of supervision exercised over a section head by his administrative chief. The latter expects a finished product without appreciable reference even as to general plans of the work and with practically no reference as to the specific details of how the work is to be accomplished.

*General Administrative Direction.* The degree of supervision exercised over a trained technical man by his administrative head. General Administrative Direction lays emphasis on the fact that the technical features of the work are practically all in the hands of the worker. It is illustrated by the direction the President of a manufacturing corporation might exercise over the Chief Engineer.

It is advantageous to use the simple declarative voice in stating the duties of the position—"Under general supervision, the Sheet Metal Worker constructs by machine or hand the sheet metal parts used in building construction, water tanks, and so forth. He works from sketches and blueprints and uses such tools as square shears, brake and beading machine, and so forth." This is found to be clearer and more direct than infinitive or participial phrases or abbreviations; these usually are clear to the author, but confusing to others.

It is also found advantageous to express the duties *in general terms* wherever possible in order to lend elasticity to the Occupational Description and to specify definite duties of a detailed nature under illustrative phrases using the expression "such as," viz: "He may carry on research work in special problems, *such as*, effect of combined bending and compression, studies of eccentric movements, and so forth."

#### QUALIFICATIONS REQUIRED AND QUALIFICATIONS DESIRED

Next the interviewer enters *Hours* in the margin and opposite it the hours of work, daily and Saturday. Here also he specifies the vacation allowed.



Then he enters *Minimum Qualifications* in the margin and opposite it he describes the qualifications the employee *must* possess to be considered for the position at all; these are shown on page 2 (Figure 14b) of his Work Sheet. First, *education* is defined and second, *experience*. Then, if equivalents are permitted, if, for instance, additional experience will be accepted in lieu of a certain amount of education, the changes are rung on them here.

When education and experience have been properly specified, the interviewer proceeds in the next paragraph to define those other qualities of a personal nature which are required in the position—such qualities as judgment, accuracy, and physical qualities. These are also shown on page 2 (Figure 14b) of the Work Sheet. Where such a quality exists in zero degree, it is good practice to make no mention of it whatever. The information in the Occupational Description should be positive only, not negative. Usually sex and age are entered last under minimum qualifications.

Next, *Additional Qualifications Desired*. We have reference here to those qualifications which it is desirable for the worker to possess over and above those which he must possess to be considered for the position at all. Here the word *must* gives way to the word *should*. This, of course, is taken from entries on page 3 (Figure 14c) of the Work Sheet.

Next, after *Working Conditions*, the interviewer enters a brief description of the conditions under which the duties of the occupations are performed, especially those which are unusual or objectionable.

Lastly, he enters the names of those lower positions which seem to lead up to the position which is being described and the names of those higher positions to which it in turn seems to lead. This usually calls for analytical thinking and for the study of the Occupational Descriptions for allied positions.

When this point has been reached, the interviewer has the Occupational Description properly typed and then submits

it personally for the consideration of the foreman or executive in charge of the job. This is excellent policy. It frequently serves to indicate inaccuracies in the original compilation of facts. It serves to enlist the executive's active interest in the enterprise in a degree which would not be realized if he were given no opportunity to look over the finished draft and to criticize it.

Where good suggestions are made, they are, of course, embodied in the final draft of the Occupational Description. Here again, however, the interviewer uses his judgment, as he is frequently made the gratuitous recipient of irrelevant suggestions and comments characterized chiefly by misplaced emphasis.

#### VALUATING THE FACTORS AFFECTING COMPENSATION

At this point the Occupational Description is nearing completion. The attention of the student, however, is directed to the box at the top of the Occupational Description entitled Minimum Requirements. This is broken down into seven compartments, each of which is intended for an entry indicating the degree to which a factor important in establishing proper rates of compensation exists in the work. These factors are Education required, Experience required, the degree to which Judgment is exercised in the work, the importance of Accuracy in the work, the degree of Supervisory Ability exercised in the work, the Physical Qualities required on the part of the worker and the nature of the Working Conditions under which the duties of the occupation are performed.

For purposes of concise statement and easy evaluation, a code is usually adopted to indicate the degree to which these seven factors exist in each occupation. The letter A is used to indicate that it exists in maximum degree. The letter F is used to indicate that it exists in minimum degree. Specifically these letters are interpreted in case of each factor according to Table 3 on the opposite page.

TABLE 3

CODE USED FOR CONCISE STATEMENT AND ROUGH EVALUATION

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EDUCATION

- A. Graduation from college
- B. Graduation from high school
- C. Two years high school
- D. Graduation from common school
- E. Six years common school
- F. None

## EXPERIENCE

- A. Ten years
- B. Five years
- C. Three years
- D. Two years
- E. One year
- F. None

## JUDGMENT

- A. Errors may cause loss of life
- B. Errors may cause personal injury
- C. Errors may cause money loss
- D. Errors may cause confusion—Inter-departmental
- E. Errors may cause inconveniences—Intra-departmental
- F. None

## ACCURACY

- A. Errors may cause loss of life
- B. Errors may cause personal injury
- C. Errors may cause money loss
- D. Errors may cause confusion—Inter-departmental
- E. Errors may cause inconveniences—Intra-departmental
- F. None

## SUPERVISION

- A. Supervising one hundred
  - B. Supervising fifty
  - C. Supervising twenty-five
  - D. Supervising ten
  - E. Supervising five
  - F. None
-

TABLE 3 *Continued*


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 PHYSICAL QUALITIES

- A. Superlative—e. g. Great strength (continuous heavy lifting), exceptional eyesight (draftsman, instrument maker, and so forth)
- B. Superior—e. g. Unusual strength (occasional heavy lifting, good eyesight (machinist)
- C. Better than average—e. g. Better than average strength (carpenter, plumber), better than average eyesight (typist, mimeograph operator, fabric worker)
- D. Below average—e. g. Average strength not needed (watchman, messenger, engineers)—average vision not needed (doper, dry kiln operator, fire-fighter)
- E. Slight—e.g. Little strength required (office worker, watchmaker, draftsman), poor vision acceptable (janitor, laborer)

## WORKING CONDITIONS

- A. Imminent risk of life—e. g. Experimental parachute jumpers
  - B. Dangerous—e. g. Flying work, steeplejack, high tension wireman
  - C. Hazardous—e. g. Aviation mechanic, ground man, yardman
  - D. Unhealthy or extremely unpleasant—e. g. Doper, propeller test, acid room workers, and so forth
  - E. Factory or shop
  - F. Office
- 

Of course, this table of equivalents is necessarily prepared anew for each company in order to allow intelligible comparisons. Those appearing in this table obviously have reference to a factory where airplanes are made. They would have very little significance in a department store or insurance company.

It is customary, when the Occupational Description has thus been brought to completion, to have several copies made and to have them filed in numerical order according to the Occupational Code.

The use of the Occupational Description in selection, in acquainting the new employee with the nature of his work, in establishing a common language between the Personnel Department and the operating departments, in wage control, will be discussed in future chapters.

#### THE OFFICE PROCEDURE

The number of interviewers assigned to the work of constructing Occupational Descriptions necessarily vary according to the size and nature of the company, the availability of good men for the purpose and the need for haste. Where one or two are alone engaged in this work, the problem of control and direction is small. Where a staff of ten or twelve interviewers are at work simultaneously, the task of coordinating their investigational efforts in the original preparation of the Occupational Descriptions, in submitting the copy for the approval of the department executives, in redrafting the copies, is one presenting considerable difficulty.

Under these conditions, it is advisable to maintain in the central office a Progress Chart such as that reproduced in Figure 16. Here the occupations are listed down the left-hand column in numerical sequence and the other columns on the page are used to indicate the various steps in the work of constructing the occupational descriptions such as "Work Begun," "Redrafting," "Minimum Qualifications Approved," "Typed," "Filed." An ordinary correspondence file folder is numbered for each occupation and into it are slipped the Work Sheet, memoranda and relevant papers of one kind or another which pertain to the occupation. These folders are all inserted at the outset in the front section of a filing cabinet which contains as many divisions as there are columns on the Progress Chart. Then, as the interviewer completes each step, the folder pertaining to the Occupational Description is advanced to the next section in the file. At the same time a check is indicated in the proper

SYMBOL	DESIGNATION	B First Draft Made	C Ret. by Steno.	D Ret. by Interv.	E Ready for Fore.	F Ret. from Fore.	G Refra. ready for C.S.	H OK'd by C.S. Rdy.A.S.	I OK'd by A.S.	
095	Laborers	X	X	X	X	X	X	X	X	
096	Laborer - Skilled	X	X	X	X	X	X	X	X	
097	Laboratory Aid	X	X	X	X	X	X	X	X	
098	Legal Assistant	X	X	X	X	X	X	X	X	
099	Lumber Checker	X	Eliminated							
100	Machine Repairman	Eliminated								
101	Machinists	X	X	X	X	X	X	X	X	
102	Assistant Surge	X	X	X	X	X	X	X	X	
103	Mechanical Draftsman	X	Eliminated							
104	Mechanical Engineers	X	Eliminated, see Asst. Aero. Eng.							
105	Messengers	X	X	X	X	X	X	X	X	
106	Metal Fittings Maker	X	Eliminated							
107	Metal Spinners	X	X	X	X	X	X	X	X	
108	Asst. Metallurgist	X	X	X	X	X	X	X	X	
109	Millwright	X	X	X	X	X	X	X	X	
110	Molders	X	X	X	X	X	X	X	X	
111	Motor Mechanic	Eliminated								
112	Oper. Addressograph	Eliminated								
113	Oper. Blue Print Machine	X	X	X	X	X	X	X	X	
114	Calculating Mach. Oper.	X	X	X	X	X	X	X	X	
115	Operator Linotype	X	X	X	X	X	X	X	X	
116	Operator Multigraph	Eliminated								
117	Oper. Tabulating Machine	X	X	X	X	X	X	X	X	
118	Operator Sewing Machine	Eliminated								
119	Painter and Varianter	X	X	X	X	X	X	X	X	
120	Parachute Engineer	X	X	X	X	X	X	X	X	
121	Patent Spec. Writer and Proo	X	Eliminated							
122	Pattern Makers	X	X	X	X	X	X	X	X	
123	Photographers	X	X	X	X	X	X	X	X	
124	Jr. Physicist (Aero.Photo'y)	X	X	X	X	X	X	X	X	
125	Asst. Physicist (Aero.Photo)	X	X	X	X	X	X	X	X	
126	Asst. Physicist (Aero.Dyn'm's)	X	X	X	X	X	X	X	X	
127	Physicist (Aero Inst.)	X	X	X	X	X	X	X	X	
128	Project Engineers	X	X	X	X	X	X	X	X	
129	Plumbers	X	X	X	X	X	X	X	X	
130	Power Plant Engineers	X	X	Eliminated						
131	Press Feeders	X	X	X	X	X	X	X	X	
132	Pressman	X	X	X	X	X	X	X	X	
133	Production Supervisor	X	X	X	X	X	X	X	X	
134	Prosthetic Makers	X	X	Eliminated, combined with 024						
135	Purchasing Agent	X	X	X	X	X	X	X	X	
136	Junior Radio Engineer	X	X	X	X	X	X	X	X	
137	Radio Mechanician	X	X	X	X	X	X	X	X	
138	Riggers	X	X	X	X	X	X	X	X	
139	Screw Mach. Oper.	X	X	X	X	X	X	X	X	
140	Sheet Metal Workers	X	X	X	X	X	X	X	X	
141	App. Blacksmith	X	X	X	X	X	X	X	X	

Figure 16: Typical Progress Chart used for coordinating investigational efforts in the original preparation of the Occupational Descriptions

column on the progress chart so that the chart continuously reveals the progress of the Occupational Description through the file from the first stage of not-having-been-begun to the final stage of having-been-completed. The maintenance of the files and the progress chart is ordinarily assigned to a capable clerk.

Let us assume that Mr. Jones, one of the interviewers, has proceeded through these various stages in the consideration of the Occupational Description for Blacksmith's Helper No. 104. Before he started out to make his inquiries he was handed the Work Sheet for Blacksmith's Helper No. 104 on the reverse of which appeared the names of seven Blacksmith's Helpers. In the process of learning their duties, he finds that two of these were really not Blacksmith's Helpers but were learning Oxy-acetylene Welding. Upon ascertaining this fact he crosses their names off the fourth

page of his Work Sheet and makes a memorandum that John Smith and Henry Black were wrongly classified as Blacksmith's Helpers and should be considered under Oxy-acetylene Welders. This memorandum is handed to the clerk in charge of the files who inserts it in the numbered folder for Oxy-acetylene Welders. Thus when Mr. Jones or one of the other interviewers proceeds to make a study of the Oxy-acetylene Welders, he finds the names of those two men on the fourth page of the Work Sheet for that occupation.

When all the Occupational Descriptions have apparently been completed the corresponding Work Sheets should indicate the names of the workers properly classified under those occupations. It is unwise, however, to regard this information as positive. The usual procedure, consequently, is to check these names against the total list of employees in the company. This procedure usually results in a list, long or short, of the names of employees who have not been identified with one or another occupation. The duties of these "lost souls" are then studied in the same manner as we have described. This results in the creation of additional classifications. When these have been completed, the management should be in possession of a complete set of Occupational Descriptions describing the positions throughout the organization and identifying the individual workers belonging to each occupation.

We must not forget, however, that the personnel situation within any organization is changing—always changing. The classifications established by these Occupational Descriptions and the names of employees classified under each are presumably correct at the moment. Changes, however, are constantly taking place. Transfers and promotions are being made. Employees are being released; others are being hired. It is necessary consequently to establish a procedure whereby every transfer, every promotion, every new employee engaged and every release is made known to the custodian, whoever it may be, of the Occupational Descriptions and of the lists of employees within each occupation, sometimes known as the Occupational Census.

It is desirable for several copies of each Occupational Description to be prepared. Of course, the Personnel Department requires at least one complete set. In addition, each department head should have a copy of the Occupational Description for every position which exists in his department. The reason for this will become apparent when we proceed in Chapter XXV to discuss the use of the Occupational Description in departmental administration.

There is, of course, nothing arbitrary in the procedure which has thus been outlined. The size, nature and complexity of each organization will determine the exact procedure to be followed in preparing Occupational Descriptions for the positions in that organization. The foregoing, however, is a statement of a procedure found to be effective. It undoubtedly contains the elements which exist in every program for the construction of Occupational Descriptions and may be regarded as a typical plan of action.

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## X

### CONSTRUCTION AND DEVELOPMENT OF THE PROMOTIONAL CHART

What it is and its relation to the Occupational Description. Procedure in creating the rough draft. Making the Occupational Descriptions reciprocal. Need for study of promotional possibilities. Attack on the "blind-alley job." Making the final draft.

THE importance of the Promotional Chart in personnel administration has been emphasized several times in preceding chapters. While it cannot be regarded as one of the major personnel instruments in the sense in which the Qualification Card or the Occupational Description are major instruments, yet its value is so great and its relation with the Occupational Description is such that we should consider its construction now rather than later. As we proceed in later chapters to consider the use of these various instruments in personnel administration, we shall have occasion to refer to one and all and for that purpose we should acquaint ourselves with their nature and construction at this stage of our deliberations.

Chapter IX tells how the Occupational Description for each position shows, in addition to other data, the promotional opportunities opening before the worker. This information is essentially useful in revealing *from* what occupations workers can be promoted to certain positions most logically and *to* what occupations they can most logically be promoted from certain positions. These promotional lines take no notice of those other lines of advancement which may be open to an individual through special ability or study on his part. In this sense, of course, any higher position is a logical line of advancement for a per-

son in any lower position. Consequently, we should consider in tracing the promotional opportunities for any position only those higher occupations which in a vital sense *utilize experience gained in that position*.

Now for various purposes of personnel administration it is desirable to reveal these normal lines of advancement in such a way that the whole promotional situation within an organization is capable of visualization at a glance. The need for such a bird's-eye view of the promotional opportunities within an organization is apparent when we consider that a clear-cut promotional policy is recognized as an essential part of any effective personnel control because, as we have emphasized, employees are not ordinarily satisfied with the vague statement that higher positions are filled from within the organization and that "there is always room at the top for a good man." In the first place they realize that such verbiage is frequently bunk—we use their own phraseology. They think, and in many cases think rightly, that this is merely a happy phrase rather than a going policy. They suspect (at times with keener discretion than they are conscious of) that management, while it sincerely desires to make such a promotion-from-within-policy a matter of actual practice, frequently lacks the methods and technique of doing so. And so they demand evidence of a definite promotional policy and of management's ability to make it operative.

In carrying out such a policy there is a primary need for the Occupational Description and for the Qualification Card, as we have already pointed out. There is need furthermore for a Promotional Chart of the kind we have described which will trace the avenues of advancement up through the organization in such a way that every employee may see the opportunities open before him and with the Occupational Description inform himself of the experience or special training he should acquire in order to advance up those different avenues.

## THE ROUGH DRAFT

The construction of the Promotional Chart can best be done at the time the Occupational Descriptions are being prepared. It has been found excellent procedure to utilize a large sheet of paper—the size naturally depends upon the organization—spread upon a table or tacked to a wall. Along one of the sides of this large sheet of paper are entered rough occupational group-titles such as Clerical, Mechanical, Engineering, Technical, Labor, and so forth, which serve thus to divide the sheet into “areas.” As the various occupations are to be entered on this sheet (in the manner to be described), it is apparent that the purpose of these areas is to bring together in the same parts of the sheet those occupations which have a family resemblance and between which, consequently, there is greater probability of promotional relationship.

As each Occupational Description is completed, the individual charged with the construction of the Promotional Chart enters a free hand circle an inch or two in diameter in the appropriate area and writes in it the name and code number of the occupation. If the occupation is obviously of lesser importance, the circle is drawn near the bottom of the chart—near the edge farthest from the area titles. If it is a high and mighty occupation, the circle is drawn near the top. Bourgeois, middle-class occupations are shown by circles in between. As an illustration, the occupation File Clerk would be indicated by a circle in that area headed by the word “Clerical” and near the lower edge of the sheet. The occupation Secretary, on the other hand, would appear on the same area but nearer the head of the chart.

Let us assume by way of illustration that the Occupational Description for Stenographer has been completed and has been referred to the person in charge of the Promotional Chart. This person draws a circle at the proper place in the Clerical area and writes in it the code number of the

occupation and the title Stenographer. The occupation Stenographer then is represented on the chart.

The next step is that of drawing phantom circles below and above the real circle for Stenographer for the occupations named in that Occupational Description as those *from* which persons can best be drawn for the occupation of Stenographer and those *to* which persons experienced in the occupation of Stenographer can most logically advance. Let us assume, consequently, that the Occupational Description for Stenographer Number 156 indicates that persons occupying the position of Typist Number 107 should be considered when vacancies in the position of Stenographer Number 156 occur. A phantom circle is then drawn in the proper area but below that representing Stenographer Number 156 and in that phantom circle is entered Number 107 and the term Typist. A line is drawn connecting that phantom circle Typist Number 107 with the real circle Stenographer Number 156.

Similarly, let us assume that Occupational Description for Stenographer Number 156 indicates that it leads to the position of Secretary Number 201. A phantom circle is consequently entered in the proper area for Secretary nearer the top of the chart than that of Stenographer Number 156 and a line is drawn connecting it with the real circle Stenographer Number 156. On each of these two lines, immediately adjacent to the circle Stenographer Number 156, is drawn an arrowhead pointing in the direction of advancement. This arrowhead is a device adopted to show that the Occupational Description for Stenographer Number 156 indicates that the avenue of promotion is from Typist Number 107 and to Secretary Number 201. The purpose of these arrowheads will become apparent in a moment.

Now as fast as the Occupational Descriptions are completed they are entered thus on the rough chart by real circles similar to that already drawn for Stenographer Number 156. The positions bearing a promotional relationship to them are similarly indicated by phantom circles. Of course,

where a phantom circle already exists for such a position the connecting line is drawn from or to that phantom circle which is already drawn; in this case a second phantom circle is of course avoided.

#### MAKING THE OCCUPATIONAL DESCRIPTIONS RECIPROCAL

When a phantom circle already exists on the chart for a position for which the Occupational Description has now been completed and which naturally is to be shown on the chart by a real circle, the phantom circle is then blocked into a real circle, the lines of connection drawn and the arrowheads entered.

The purpose of the arrowheads now becomes clear. If two real circles are connected by a line which has but one arrowhead, attention is called to a lack of reciprocity between the two Occupational Descriptions. The Occupational Description for Stenographer Number 156, for instance, indicates that the logical line of promotion is from Typist Number 107, but the Occupational Description for Typist Number 107, does not return the compliment.

At this point a section of the rough chart might appear as illustrated in Figure 17.

Here it is apparent that the Occupational Description for Typist Number 107, Stenographer Number 156 and Secretary Number 201 have been completed. The Occupational Description for Secretary Number 201 states that the line of promotion is from Stenographer Number 156 as revealed by the arrow on the connecting line immediately adjacent to the circle for Secretary Number 201. Conversely, it is apparent that the Occupational Description for Stenographer Number 156 indicates that it leads to Secretary Number 201 as revealed by the arrow on the same line immediately adjacent to the circle for Stenographer Number 156.

There is also a line connecting Stenographer Number 156 with Typist Number 107. This bears but one arrow, that immediately adjacent to the circle for Stenographer Num-

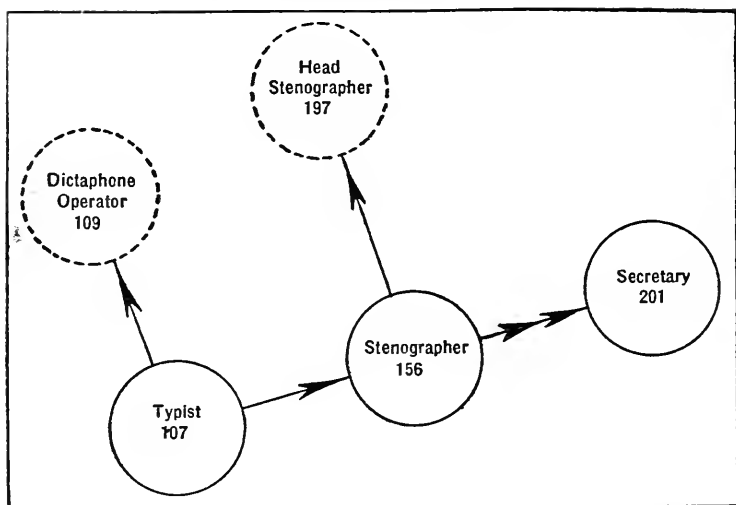


Figure 17: Chart showing the Reciprocal Relation of Occupational Descriptions

ber 156. As implied above, this indicates that the Occupational Description for Stenographer Number 156 states that the line of promotion is from Typist Number 107. The absence of a second arrow, however, immediately adjacent to the circle for Typist Number 107, indicates that the Occupational Description for that position does not state that it leads to Stenographer Number 156. Here is a lack of reciprocity between these two Occupational Descriptions. The interviewer then studies these two positions anew to ascertain if this promotional relationship really exists and, if it does, to enter "Stenographer Number 156" on the Occupational Description for Typist Number 107 in order to indicate that advancement logically takes place to that higher position.

The phantom circle for Dictaphone Operator Number 109 indicates that the Occupational Description for that position has not yet been completed. It is shown in this form, however, because the Occupational Description for Typist Number 107 names that position as one to which the position of Typist Number 107 leads. Notice the single arrow on

that line immediately adjacent to occupation for Typist Number 107.

#### NEED FOR SPECIAL STUDY OF PROMOTIONAL POSSIBILITIES

It is unreasonable, of course, to expect the interviewer preparing the Occupational Description for a position to visualize at that time all the promotional opportunities inherent in the position. It is quite natural that he should overlook many. The compilation of these avenues of advancement is a problem calling for a careful analysis of the Occupational Descriptions for all positions which bear the slightest resemblance. The avenues of promotion as entered on the rough copy of the Promotional Chart from the Occupational Descriptions should be regarded only as the basis for more analytical study of the organization. Consequently, the person assigned to the construction of the Promotional Chart should be selected for his power of analysis, his ability to trace relationships, his personal knowledge of the work through the organization, and his interest in research. It is under his direction that the interviewers who have prepared Occupational Descriptions for positions which are not thus reciprocal will confer, secure additional facts as needed and reach a decision as to whether in each instance the avenue of advancement actually exists. Not infrequently it is necessary to pay return visits to the department and to consult with the executives and employees in order to obtain the true facts.

When all the Occupational Descriptions have been completed and when the corresponding circles have been entered on the rough draft of the Promotional Chart, the result is usually something of amazing intricacy. Positions which at the outset seemed to have no generic relationship whatever and which consequently were entered in the first place in entirely different parts of the chart will be tied together by connecting lines. The "areas" serve to make most of these connecting lines as short and direct as possible, but in all probability the chart will be obscured by long sinuous lines

beginning with one circle and weaving their way in and out until they finally reach the other.

#### MAKING THE FINAL DRAFT

The chart is now ready for the draftsman. It is his responsibility, with the cooperation of the author of the chart, to restore order out of chaos. In doing so it has been found good practice to cut small cards each representing a circle on the rough draft and to arrange and rearrange them on the surface of a table until the minimum of complexity has been attained. The draftsman is then in a position to make this arrangement permanent and to draw in the connecting lines. The Promotional Chart for one organization prepared according to this technique is illustrated in Figure 18.<sup>1</sup>

Broadly speaking, the chart serves two purposes, first to indicate those positions which bear a promotional relationship with each other and second, to indicate those positions

<sup>1</sup> The following is quoted from explanatory preface which originally contained the chart reduced as Figure 18:

"This chart shows the lines of advancement from the lowest positions in the organization up through the intermediate grades to the higher positions. It permits a bird's-eye view of the information which is entered individually by Occupation on the Occupational Descriptions. It shows the positions which seem to offer unusual opportunity to get ahead. It shows those positions advancement from which seems improbable, except, of course, through a study and self-preparation of a kind and degree over and beyond that yielded in the performance of the duties of the position. Naturally no consideration has been given in these statements of the lines of promotion to those channels which may be open to an employee by virtue of special preparation or unusual ability. In such a sense any position \* \* \* \* \* is a logical promotion for any employee.

"But the use of the chart in the Employment Department is only a part of its function. As stated above, it should be made a source of constant incentive to the employees \* \* \* \* \* in revealing to them the avenues of advancement opening ahead of them which they may expect to travel *provided they make good on their own jobs and show evidence of initiative and ability.*

"Obviously there is a close tie-up between the prosecution of such a promotional policy as we outline here and the successful maintenance of a group of understudies qualified to step into the positions of their superiors should it become necessary to replace such superiors.

"As stated, this chart shows a number of positions which seem rich in opportunities for advancement, others which are not so well endowed and others which offer no opportunities for advancement whatever. The latter are the positions which first call for study and analysis. In indus-



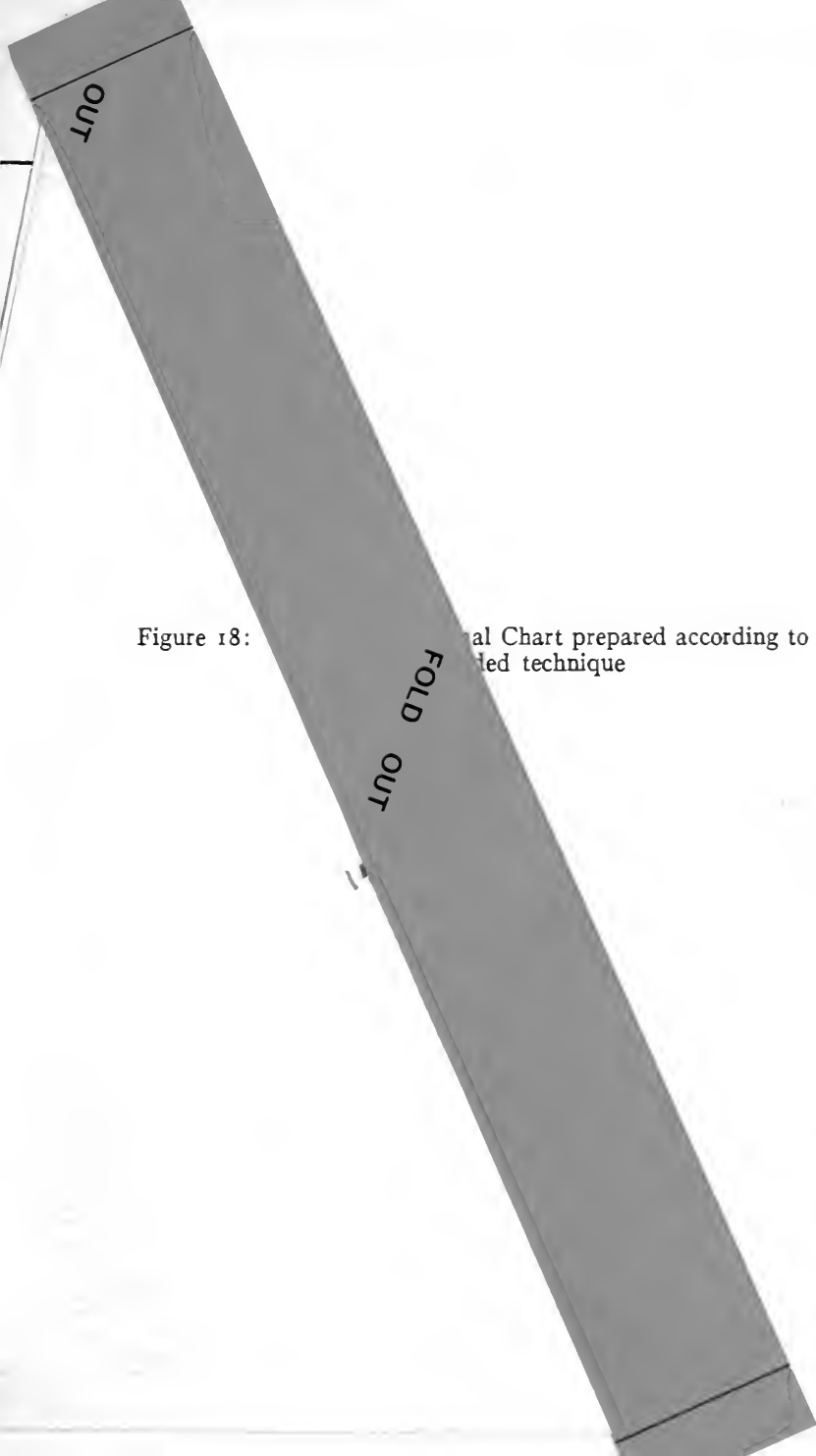
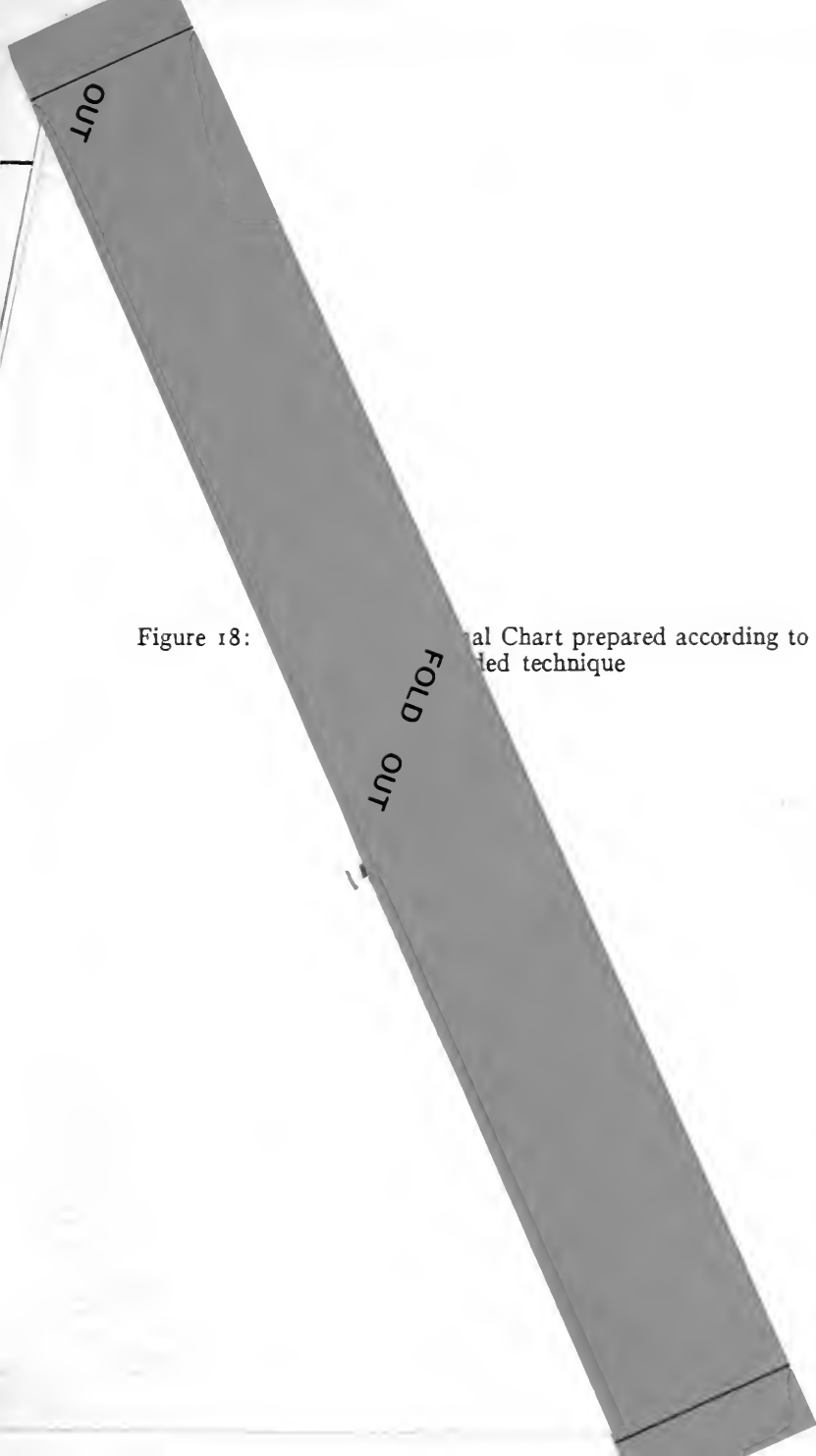


Figure 18:  al Chart prepared according to the  
ed technique



which seem to enjoy no promotional opportunities at all. It is true that in most concerns there will be blind-alley jobs. It is true that in certain instances it is unavoidable that they exist. It is none the less true, however, that careful organization study will frequently open up avenues of advancement for many such blind-alley jobs. Here is an opportunity for constructive investigation on the part of Personnel Department. Every position indicated on the chart as having no promotional opportunities ahead should be made the subject of careful analysis. If such opportunities are capable of development, they should be so developed and indicated on the Promotional Chart. If such promotional opportunities are incapable of development, that fact should be definitely established.

In a later chapter we shall discuss the use of the Promotional Chart as an instrument in providing incentive and increasing the Capacities and Interests of the workers.

trial practice it has been found possible to resolve these 'blind-alley jobs' into jobs leading to other and better jobs by careful planning. While such industrial practice may not be a sure criterion for such an organization as \* \* \* \* \* it is our belief that similar study and analysis of these positions will make it possible to break down the walls which now apparently prevent the incumbents in these positions from advancing."

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## XI

### CONSTRUCTING THE APPLICATION BLANK

Its purpose. Procedure. A questionnaire and a check list. The content of the Application Blank. References. The interviewer's Rating Scale. Method of quick reference. Keeping the Application Blanks up to date.

IN the last two chapters we have considered the technique of ascertaining and knowing the nature of the work in the various positions throughout an organization and of the requirements of each position. In short, in our progressive study of the methods involved, we have reached a point at which information regarding the Opportunities throughout our organization is now available. Our information is no longer haphazard, no longer based upon assumption nor upon casual observation. The actual facts are in hand. And so, in the pursuit of managerial duties, action can now be taken and decisions made on matters pertaining to the work with facts as the basis. Yet only a start has been made in the construction of the necessary instruments and records. We have gone only part way. It has been pointed out in earlier chapters that we are not concerned with the work only, nor with the worker alone, nor with the combination of the two as two separate entities. We are concerned with the worker-in-his-work—an entity in itself—the nature of which we know is influenced both by the characteristics of the work and by the characteristics of the worker.

Obviously the next step is the consideration of those instruments and records which have to do with the Capacities and Interests of the workers. Here we are confronted by a more complex and delicate problem. The greatest single force in the world today is that comprising the will and action of men and women, and society has learned to control these

vast forces only in the most imperfect and fumbling manner. The elements involved are so abstract and so difficult of ascertainment and standardization that science has devoted its wizardry to those other factors in our social life which are measurable in terms of time, weight, chemical content, movement, and volume. In short, industry has made strides in the utilization of scientific principles in trade relationships, in the creation of the machines and processes of production, in routing and scheduling of work. It has made little progress in applying the same scientific principles to the men and women upon whose personal effectiveness the success of such relationships, machines and processes must depend.

So we are brought to the point at which we must consider the construction and use of those instruments which will help us to know more of the Capacities and Interests of the workers. With this information in hand, together with the information yielded by the Occupational Description, management is better able to adjust the workers to their work in such a way that Capacities, Interests, and Opportunities will be more nearly balanced and each worker-in-his-work unit made effective in the greatest possible measure.

Naturally the first step in the construction of those records which have to do with the Capacities and Interests of the worker provides for the creation of the Application Blank. This form is in such current use that detailed definition seems almost superfluous, yet the Application Blank is an important link in the chain of personnel instruments and must be so prepared as to coordinate perfectly with the whole personnel procedure.

The purpose of the Application Blank is to bring to light the more obvious data about the Capacities and Interests of the worker. It is not practicable to rely upon the Application Blank to furnish that more elusive information about shades of Capacity or shades of Interest which is necessary to effective placement. This more refined information can be brought forth only in the carefully conducted interview. The Application Blank, consequently, merely furnishes the

means of starting the process of securing the needed information about the applicant.

#### PROCEDURE

Different companies have followed different procedure in the use of the Application Blank. It is customary on the part of some to have the applicant fill out the Application Blank when he first steps into the personnel office; other concerns make a practice of having the applicant fill out the Application Blank only when he has passed the preliminary interview through which he has been deemed worthy of further consideration. Some concerns request the applicant to fill the blank out in full; others request him to fill it out only in part.

Industrial experience seems to indicate that time and effort are wasted in the employment office if all applicants—good, bad, and indifferent—are obliged to fill out the Application Blank. Where this practice is followed the preliminary weeding-out follows a perusal of the blanks so filled out. It is preferable in ordinary practice, however, for an interviewer trained in quick judgment to question the applicant briefly as to his experience and wishes and to appraise his general worth before instructing him to fill out the Application Blank.

Experience has further shown that it is desirable for the applicant to fill out the Application Blank at least in part. The entries in his own hand without advice or suggestion will reveal information as to his penmanship at least, as to his clarity of understanding and as to the degree of education he has attained. But more specific information regarding the applicant's Capacities and Interests cannot be obtained by a blank filled out by the applicant. It calls for the services of a capable interviewer as we shall point out more fully in our next chapter, someone who can build up an interview upon the basic information the applicant himself has entered upon the Application Blank and who can so procure the ad-

ditional data as to "shades" of Capacity and Interest which will be needed in placing the applicant effectively in the organization.

## A QUESTIONNAIRE AND A CHECK LIST

Good industrial practice, consequently, regards the Application Blank as a two-sided instrument, first, as a group of questions for the applicant himself to answer, and second, as a check list for the guidance and help of the interviewer in directing his conversation. For this reason the Application Blank should typographically be as clear and simple as possible. This is especially true of that part which the applicant himself fills out. It must be complete and provide for all the information needed in the proper placement of the new employee and provide spaces for the entry of this information. Naturally the exact form of the Application

1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	----	----	----

**APPLICATION BLANK FOR EMPLOYMENT**

**INSTRUCTIONS:** Fill out carefully the blanks on this side of the sheet, making sure that your entries are complete in every respect. If you wish to give more specific information about your previous employment, use the space provided for remarks. Do not write on the back. When you have finished, bring the blank to the Desk.

---

DATE 6/27/—

NAME Walter Judd Henderson POSITION DESIRED Correspondent Or Salesman

ADDRESS 17 West Chestnut Avenue, Chester TELEPHONE NO. Main 1962-M

DATE AND PLACE OF BIRTH January 28, 1896 - Albany, New York

ARE YOU NOW EMPLOYED? Yes If so, WHY DO YOU WISH TO CHANGE? To engage in promotive work

CAN YOU ACCEPT A POSITION AT ONCE? No If not, HOW SOON? Two weeks - to give notice to employer

NAMES OF RELATIVES NOW EMPLOYED BY THIS COMPANY John Henderson (second cousin)

PREVIOUS EXPERIENCE: Here enter the positions you have held:

Name of Employer	Street Address	City	Length of Service Yrs.   Mos.	Date Left	Just what did you do?	Salary	Name of Dept. Mgr.
<u>American Stamping Co.</u>	<u>High and Spruce</u>	<u>Chester</u>	<u>2</u> - <u>-</u>	<u>7-1-1916</u>	<u>Adjust complaints</u>	<u>\$30 wk</u>	<u>Mr. Thompson</u>
<u>Jones and Thatcher</u>	<u>400 Main St.</u>	<u>Chester</u>	<u>3</u> - <u>6</u>	<u>7-1-1916</u>	<u>Clerical work</u>	<u>23 wk</u>	<u>Mr. Jones</u>
<u>Elite Typo Co.</u>	<u>26 N.E. Hanley St.</u>	<u>Albany</u>	<u>3</u> - <u>-</u>	<u>6-1-1917</u>	<u>Hard work</u>	<u>18 wk</u>	<u>Pete O'Brien</u>
<u>School</u>							

REMARKS: Do not want a mechanical or routine job. Believe I can sell or promote sales by letter. Am interested in that kind of work.

Figure 19a: Face of Typical Application Blank for Employment

Figure 19b: Reverse of Typical Application Blank for Employment

Figures 19a and 19b show a typical Application Blank prepared according to this principle. The front is for the perusal of the applicant and for his own hand-written answers. The desirability of having the applicant fill out this information is obvious. The questions have to do with specific, concrete information which allow little latitude for variation from fact in the response.

## THE CONTENT OF THE APPLICATION BLANK

The reverse of the Application Blank, on the other hand, is prepared for the use of the interviewer and serves both



as a check list for him and as a recording surface for entering the information elicited in the interview. In drawing out this information from the applicant, the interviewer usually uses the indirect method rather than the direct question. Under education, for instance, by check mark he indicates the degree of education the employee has had, and writes the name of the school or college he attended. Similarly, by check mark over the appropriate initial he indicates roughly whether, as a result of his observation, the applicant qualifies as excellent, good, fair, or poor in handwriting and in the making of figures, in mathematical computation, and in English. Under High School and College entries are made to show the courses the applicant has taken and in which he has specialized. The applicant's linguistic ability is indicated, and data entered as to the business courses he has completed or the technical training he has enjoyed.

If he is now studying, that information is entered in the space provided. If he desires further education or training, entry is similarly made to that effect together with a description of the kind of education or training desired.

In the interview personal data about the applicant are also brought to light. The facts of sex and race will, of course, be obvious, and are indicated by checks over the appropriate M F—W C. Similarly by a check the interviewer indicates whether the applicant is Single, Married, Widowed, or Divorced and again his housing status is shown. Does he Own his home? Does he Rent? Does he Board? Does he Live at home? Is he Paying on his home? Similarly, entries regarding the employee's dependents, both partial and full, are made in the proper spaces.

Such physical data as are available from the interview (the physician's examination has not yet been held) are entered in the spaces provided for physical data. The applicant should be encouraged to speak quite frankly of his physical qualifications, of those respects in which he apparently excels and those respects in which he may be deficient. If, for instance, he suffers from poor eyesight, it will be to his best advantage

to state that fact quite clearly. Frankness on his part will enable the interviewer to arrange for his assignment, other things being equal, to work in which poor eyesight will not impede him and which in turn will not injure his eyes still further. If he has a weak heart, he should take especial care, especially if applying for a job requiring physical labor, to make that fact known to the interviewer. With that information in hand, the interviewer will be in a position to assign him to work in which heavy physical exertion can be avoided. To be sure, such information may make it impossible for the interviewer to employ the applicant at all, but even this is preferable to the other alternative; it is better to be unemployed for the moment than to be strumming a harp or heaving a shovel.

Naturally the applicant is tested for proficiency in the job for which he is applying, provided the work lends itself to that kind of approach. His score in such tests is entered on the Application Blank. These scores will have much to do with his final selection and with his placement in this work or that.

Nor does the interviewer give his attention only to the applicant's *Capacities*. It is always difficult to learn the exact truth about a person's Interests and motives in such a brief conversation as that which is necessary in most instances. It is quite possible, none the less, for the interviewer to create that atmosphere in his conversation which will lead the applicant to speak fully and frankly of the kind of work he enjoys and of his special hobbies. Naturally the interviewer is on his guard to sift fact from fancy in the applicant's replies and enters in the space on the Application Blank only that information with reference to his desires and interests which is apparently genuine.

#### THE INTERVIEWER'S RATING SCALE

The Application Blank, when properly constructed, also makes provision for a record of the interviewer's impression of the applicant in certain more obvious personal qualities.

We shall point out in Chapter XIII that any rating of an individual's qualities must be based upon the rater's knowledge of the individual in those qualities. Naturally the interviewer does not possess this knowledge of the applicant which, to be reliable, must be based upon day-in and day-out experience with him over a considerable period of time. It is impossible for the interviewer to form reliable judgments of the applicant in terms of initiative, industry, planning and organizing ability, leadership, cooperativeness. If the applicant is made a member of the organization, he will later be rated in such qualities as these, and it will then be entirely practicable to make such ratings, as the department heads and others in supervisory positions will then have had the opportunity to observe the degree to which the employee manifests these qualities in his work.

It is necessarily the interviewer's function, nevertheless, to judge the applicant as far as he can do so. Whereas he is not in a position to rate him in terms of the qualities we have just discussed, he must inevitably form his opinion of the applicant in certain more obvious, perhaps more superficial, qualities which are apparent on the surface. The Interviewer's Rating Scale, consequently, makes it possible for the interviewer to rate the applicant in such terms as appearance, manner, apparent quickness of understanding, apparent friendliness and cooperativeness, and physical qualities. The technique employed to record these judgments in the space provided for them on the Application Blank will naturally vary according to the kind of rating scale employed. Presuming, however, that the Graphic Rating Scale, such as is described in Chapter XIII, is integrated into the personnel technique of a company, it is probable that letters or digits will be entered in the proper spaces to indicate the degrees in which the applicant possesses these more obvious qualities.

There must be, of course, a close similarity between the content and layout of the Application Blank and the content and layout of the Qualification Card, which we will discuss

in our next chapter. A great deal of the information which is to be entered on the new employee's Qualification Card will be taken bodily from his Application Blank and as a matter of clerical procedure, this can be done most readily when a degree of parallelism of this kind exists between the two records.

#### METHOD OF QUICK REFERENCE

When the applicant is engaged at the time of his first interview, the information on his Application Blank is transferred to his Qualification Card and the Application Blank itself is relegated to a dead file. Very frequently, however, the applicant is not engaged at the time of his first interview. There is no vacancy in the organization at the moment, to which he can be assigned. He asks that his qualifications be recorded so that he can be considered for employment when such a vacancy offers itself.

In this case, the Application Blank can be so filed that the applicant will be brought to the attention of the Personnel Department when a position becomes vacant for which he is generally qualified. It will be noted that a row of numbers appears at the top of the Application Blank. Utilization of these numbers makes it possible, while filing the blanks alphabetically for ready reference, to find those persons who seem generally qualified for one kind of work or another. One company, for instance, employs the following code:

- |         |   |                                   |
|---------|---|-----------------------------------|
| Red tab | { | 1. General Clerk—inexperienced    |
|         |   | 2. General Clerk—experienced      |
|         |   | 3. Typist                         |
|         |   | 4. Stenographer                   |
|         |   | 5. Other office machine operators |
|         |   | 6. Supervisor and executive       |
|         |   | 7. Boys                           |
|         |   | 8. Correspondent                  |

- |         |   |                                    |
|---------|---|------------------------------------|
| Red tab | { | 9. Printing                        |
|         |   | 10. Underwriting                   |
|         |   | 11. Garage, buildings, and grounds |
|         |   | 12. Miscellaneous                  |

A red tab on the space numbered 1 indicates that the applicant is qualified in terms of education for General Clerk, but that she has not yet had actual experience in the work. Similarly a red tab on Figure 2 indicates the applicant has had both education and experience in general clerical work. When it is necessary, for instance, to fill a position of Secretary and it is desired, possibly by virtue of the fact that there are no qualified stenographers from within, to secure one from without the organization, all those blanks are lifted from the file which bear a red tab on Figure 4.

In like manner, yellow tabs are employed to indicate experiential and educational qualifications and certain important personal qualities; the same numbered spaces are used as follows:

- |            |   |   |
|------------|---|---|
| Yellow tab | { | 1. Unusually good general business experience |
|            |   | 2. Common school graduate                     |
|            |   | 3. High School graduate                       |
|            |   | 4. College graduate                           |
|            |   | 5. Average mental alertness                   |
|            |   | 6. Good mental alertness                      |
|            |   | 7. High mental alertness                      |
|            |   | 8. Unusually good personality                 |

It would be desirable, in this instance, to select a girl with a High School education and a good personality. Consequently, blanks carrying yellow tabs on Figure 3 and 8 are similarly withdrawn.

A perusal of the blanks will make available information regarding all the recent applicants for employment at the company who seem *generally* qualified for a stenographer's position. The actual selection of the applicants to be interviewed is made from a careful study of the detailed data appearing on the blanks. The actual selection of the in-

dividual for the position is made, of course, only after these selected applicants have been interviewed. But of this more in Chapter XVIII.

#### KEEPING THE FILE ALIVE

It is necessary to adopt a procedure which will prevent the Application Blanks in the file from becoming obsolete. Persons will frequently apply at a company for employment but, not immediately finding a position awaiting them, will seek elsewhere for work and at times obtain it. Most of these persons are not subsequently available for employment although their Application Blanks remain in file. It is quite impracticable to expect these persons to ask the company to cancel their applications. It is humanly impossible to expect them to remember to do so. For this reason, many companies follow the practice of sending out a post-card periodically, every month or so, to the persons whose Application Blanks remain in file. Such a post-card appears in Figure 20.

Dear Sir (or Madam):

Recently you made application for employment with this company. If you still wish us to consider you for a position, will you kindly return this card to us with a note to that effect. If we do not hear from you, we shall assume you wish to cancel your application.

Send your reply to the Personnel Department.

(Signed) National Bicycle Company.

Figure 20: Card used for checking up an availability of applicants

As a part of this procedure it is customary for the Personnel Department to affix a tab of distinguishing color, blue, for instance, to indicate the month in which the Application Blank was inserted in the file. Thus, on the first of April it is possible to send out these post-cards to all those persons whose Application Blanks are tabbed with blue on 1, indicating that the Application Blanks were inserted in file

during the month of January. Two weeks later the Application Blanks for those persons who have not replied to the post-card will be lifted from the file and inserted in the dead file. These persons have presumably obtained employment elsewhere or are otherwise not interested. The live applications, however, those persons who still wish employment with the company, remain in file for the attention of the Personnel Department when positions are to be filled for which they are generally qualified.

Similarly, in May, post-cards will be sent to those persons whose Application Blanks are tabbed on 2 to show that they were inserted in the file in February, and so on, and so on.

We have now considered the methods used to record the information regarding the Capacities and Interests of applicants for employment. In the next chapter we shall proceed to consider the technique of recording the Capacities and Interests of the persons who are already members of the organization.

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## XII

### CONSTRUCTING THE QUALIFICATION CARD

The need for the Qualification Card. Four essentials. The content of the card. Getting the information—various channels. Making the information available.

IN Chapter IX the technique of constructing the Occupational Description was considered, that instrument which reveals the *Opportunities* throughout the organization. We are then, let us assume, in possession of all the facts of the work which affect the workers. Our information is no longer haphazard, no longer based upon assumption nor upon casual observation. The actual facts are in hand and as, in pursuing our managerial duties, we proceed to take action and to make decisions on matters pertaining to the work, our action is far more apt to be wise and our decisions are far more apt to be right.

#### THE NEED FOR THE QUALIFICATION CARD

Although society and industry have only begun to learn how to ascertain the Capacities and Interests of the individuals, a number of practical methods have been evolved. Certain of these methods are well defined. We shall proceed to discuss them in their proper place. Our purpose now is to consider the construction of the Qualification Card<sup>1</sup> on which this information regarding the individual's Capacities and Interests is recorded in accurate and usable form.

The need for the Qualification Card in the average industry or business concern is obvious. Only the shoestring business attempts to operate without adequate records.

<sup>1</sup> Sometimes known as the Progress Card, History Card, and so forth.



Human memory is too fragile a thing to rely upon to make available all the facts and figures needed in the successful administration of a business. Mention, if you can, a manufacturing concern which relies upon the memory of the foreman for information as to the cost of materials. Mention the insurance company which attempts to operate without the most exhaustive and analytical actuarial records.

Oddly enough, few organizations regard personnel records as equaling in importance operation records of this kind. Yet, in time, industry generally will appreciate that it is just as absurd to attempt to utilize the Capacities and Interests of the workers to maximum effectiveness through relying upon the impressions and memory of the executives and foremen, as it would be to run a railroad without time-tables or to build a bridge without specifications.

The Qualification Card offers a condensation of the important facts pertaining to the Capacities and Interests of each worker. The file of Qualification Cards, properly constructed and utilized, serves the purpose of a labor audit and reveals the labor assets of the organization. The file of Qualification Cards is the organization's index of manpower in the same sense in which man-power was interpreted in the army, not as an indication of the numbers of persons available, but as an indication of their combined effectiveness in service.

#### FOUR ESSENTIALS OF THE QUALIFICATION CARD

The successful Qualification Card possesses four essentials:

In the first place, it must be complete. It must record all information about the individual which has a bearing upon his effectiveness and success in his present work or in any other work in the organization to which he may be assigned.

In the second place, it must be brief. This information





must be recorded concisely and irrelevant information must not be recorded at all.

In the third place, it must be up to date. We have pointed out that men and women are not static, rigid units of power. On the other hand, they are plastic, changing, developing—sometimes even retrograding. Their Interests vary, their Capacities change. The Qualification Card must, so far as possible, show the Capacities and Interests of the worker as he *is*, not as he was at some former date.

In the fourth place, the Qualification Card must be so constructed and so filed that this information is immediately available when it is wanted.

#### THE CONTENT OF THE QUALIFICATION CARD

As in the case of the Occupational Description, there is no one best way of constructing the Qualification Card. Too much depends upon the nature of the business and the problems and conditions prevailing in the company itself. In one company, a folder of some kind will be preferable, in another a small card, in another a larger sheet, but except in most unusual conditions there are certain basic principles which must prevail in the form of the Qualification Card and there are certain types of information which are essential.

Let us proceed then to consider the kinds of information about the worker the Qualification Card should make available. Generally speaking, the following should be provided for:

##### I. Personal Information

Individual's name, address, telephone number, photograph, clock number, department and occupation; his marital status, number and kind of dependents, housing status (whether he owns his own home, rents or boards, and so forth), nationality, race, citizenship, and so forth.

## II. Physical Qualifications

Health, height, weight, physique, sensory acuteness; physical limitations or disabilities

## III. Educational Qualifications

Scholastic attainments both in years of schooling and in nature of courses studied: common school, high school, college or university, special training such as that procured in business college, trade school, correspondence school, night school or other institutions of technical training; literacy status, linguistic ability

## IV. Technical Ability and Aptitude

His degree of skill and knowledge in special kinds of work as revealed by trade test ratings, skill ratings, dexterity ratings, and other less direct sources of information such as inquiry and reference

## V. Mental Qualifications

Mental Alertness as revealed through objective measurement, by the use of Mental Alertness Tests, and so forth

## VI. Special Qualifications

Capacity for leadership, cooperativeness, initiative, appearance and manner, planning ability, ability in developing men, industriousness, sales ability, and so forth, as determined by rating scales based on observation.

## VII. Social Data

Hobbies, civic activities and interests, athletic proclivities, and so forth, affecting the social relationships between the worker and his associates

## VIII. Experience

History of positions held prior to employment: names of employers, length of service in each place, nature of work, earnings, and reasons for leaving

## IX. His Progressive History in the Company

a. Source of supply from which the worker was drawn and date of employment

b. Positions held since: dates, earnings, reasons for transfer and promotion

## X. Regularity and Promptness—recorded periodically

## XI. Record of Accidents—number and kind of accidents and reasons

## XII. Suggestions and Complaints

## XIII. Plant Activities, membership on employees' committees, athletic teams, social organizations, and so forth

## XIV. Desires

a. Educational—desire for further educational courses either within the plant or outside

b. Training—desire for such training in his work and in work to which he is ambitious for promotion

c. Nature of work—statement of the work in which the individual feels he will prove most effective and in which he will find greatest satisfaction

d. Transfer—reasons he desires transfer

It is evident from a perusal of this tabulation of essential data which should be entered on the Qualification Card, that several different methods must be employed to procure it. Obviously a great deal of it is a matter of history. Such information as is historical in nature can best be obtained by interview. In the case of new employees, of course, this historical data is secured from the Application Blank as described in the preceding chapter.

## GETTING THE INFORMATION

It should be pointed out here that the same reasons which make it inadvisable to utilize the questionnaire in securing

information for the Occupational Description hold good with reference to the Qualification Card. It is unwise procedure to attempt to obtain this information by a series of questions either in printed form or by word of mouth. We have pointed out above that personnel work which is not personal is an attempt to apply mechanical methods to a project which cannot be mechanized. The concern which attempts to secure such historical data from its employees by such mechanical methods is bound to fail to get the desired information and is apt to arouse antagonism and prejudices which are based upon a misconception of the work and of its purposes.

#### THE INTERVIEW VS. THE QUESTIONNAIRE

For two reasons, therefore, the interview, rather than a questionnaire, is essential in securing this historical data from the employee. In the first place, it must be remembered that due to misunderstanding, a certain amount of distrust and prejudice colors the average person's attitude toward records of this kind. This prejudice is based entirely on misinformation. The Qualification Card is the employee's spokesman in the councils of the management. It is constantly arising in meeting to proclaim his experience and special qualifications. It guarantees that through no oversight can the employee be overlooked when positions of greater importance and opportunity are to be filled. Obviously, in a concern where Qualification Cards are in use, it is a serious handicap to the individual if through error no card is prepared for him, or if through misunderstanding on his part as to its personal value to him the information recorded on it is not as complete as possible. Yet it is a common occurrence for an employee to say "All this is none of the company's business. If I do my job well that is all they have a right to ask." This common point of view is one which the questionnaire will not answer and refute. The interviewer, on the other hand, is able to give the doubting

worker a correct understanding of the nature and purposes of the Qualification Card and to win his enthusiastic cooperation instead of his grudging acquiescence. The interviewer, in short, is very largely a salesman. It is one of his primary functions to sell the idea of the Qualification Cards to the workers. Unless he is successful in doing so, the effectiveness of the personnel work as a whole may be seriously neutralized by the misconception and resultant hostility of the employees.

The second reason why the interviewer is an essential part of the plan is not less cogent than the first. Any rigid, mechanical sets of questions, whether presented in printed form or by word of mouth, will not yield the desired information. As soon as the idea in general has been sold to the employee, he must be encouraged so far as possible to talk quite freely with reference to his work, his history, his ambitions. An atmosphere of friendliness must prevail and the interviewer must create it. Confidence must be established on the part of the worker. He must be led to abandon embarrassment and reserve and to take the interviewer into his confidence. When the interviewer has been successful in creating this attitude on the worker's part, then the real facts will begin to emerge. It should be noted, however, that these facts emerge frequently as the indirect result of the conversation rather than as the direct answers to specific questions. The interviewer may have certain definite inquiries in mind, certain definite questions to ask, but he will refrain from asking them in the same manner that the census taker employs at the front door. He will direct the conversation into this channel, into that, until he strikes a response on the part of the worker. When this point has been reached, he will have little difficulty in securing the facts he wants. But unless he proceeds in this manner, the most inquisitorial interrogation will not bring the real facts to light.

It is obvious that persons of considerable judgment, initiative, and tact must be selected as interviewers. They must



have a true understanding of the principles underlying constructive personnel work and they must be sympathetic with them. They must possess that enthusiasm for the square deal in industrial relations and for the Qualification Card as a means in achieving that square deal which will make them effective salesmen of the idea. They must have a personal interest in people, a sympathetic attitude toward their problems and ambitions, yet a fund of common sense which will not permit them to indulge in sentimentality. They must be able to terminate each interview with confidence that the worker will go back to the office or shop and in turn sell the idea of the Qualification Card to his associates.

With reference to the above itemization of the facts to be recorded on the Qualification Card, it is apparent that the interview should yield the personal information desired, information as to the employee's educational advantages, the special training he has had, social data, his previous business history, his progress upward through the company since his employment, his interest in certain kinds of work, and his desire for further education and training.

Ordinarily, the work is so organized that the corps of interviewers meet with the employees, department by department. The departmental manager is, of course, won to the idea in advance and the interviews are held with his full consent and cooperation. Usually a tentative schedule is worked out in accordance with which the employees call one by one at the conference rooms where the interviews are being held. In this instance the practice differs somewhat from that employed in making the Occupational Descriptions, as it is recognized as poor practice to interview the employees at their desks or at their machines. Their minds are not free and they are oppressed both by the presence of their associates and by the work to be done. It is far easier to create the proper atmosphere of confidence and friendliness when the interviewer and the person being interviewed meet in privacy for the purpose.

## PHYSICAL QUALITIES

The information regarding the employee's physical fitness is ordinarily procurable from the records in the company physician's office or in the Personnel Department and these can readily be abstracted and entered on the Qualification Card. It is not necessary, of course, to make the entries as complete as is customary in the physician's own records. There is no need for great detail in this respect or for an itemization of facts which might be significant to a trained physician, but which might have no significance whatever for the Personnel Manager. Usually such data include a mention of height and weight, quality of eyesight and hearing, and a statement of special disability, such as pulmonary tendencies, inclination to nervousness, heart weaknesses, and so forth. It is usually advisable to specify those kinds of work for which any physical limitations of the employee may render him unfit.

## TEST FINDINGS

Where Mental Alertness Tests are made a part of the personnel procedure, it is desirable, of course, that the mental alertness score be entered on the Qualification Card on the space provided for it. As we shall explain in a later chapter, this is one instance in which some approach has been made toward a practical diagnosis of the individual's vocational aptitude. It is known in certain companies that for specific kinds of work, a person who scores high in a Mental Alertness Test, all things being equal, will succeed in the work; whereas, others who make a low score in the Mental Alertness Test will, other things equal, succeed in far less degree. It is known similarly that in other kinds of work mental alertness is a distinct liability, that persons ordinarily continue to perform the work more consistently if their score in the Mental Alertness Test is low. The mental alertness score on the Qualification Card, conse-

quently, must be interpreted with great discretion on the part of the Personnel Manager and his assistants.

Similarly, the individual's score in other tests such as Stenographic Tests, File Clerk's Tests, Dexterity Tests, and Trade Tests (such as those for Electrician, Cabinet Maker, Plumber, and Lathe Hand,) is entered in the space provided for the purpose.

#### PERSONAL QUALITIES

Information as to the degree to which the individual possesses such personal qualities as initiative, judgment, appearance and manner, industriousness, and cooperativeness, is not always ascertainable by the interviewer, although possibly he may glean some idea in his conversation of the individual's general fitness in these respects. Many concerns have no specific method of ascertaining this information reliably. But as we are considering a well-balanced personnel procedure, we will assume that these facts are in hand through the use of some such instrument as the Interviewer's Rating Scale which has already been mentioned and which will be discussed more fully in the next chapter. These entries are made in the spaces on the Qualification Card provided for them.

In like manner the attendance and promptness records are available either on independent records in the employees' departments, in the Personnel Department, or in the Paymaster's Department. The transferring of this data in condensed form to the Qualification Card is a simple matter of clerical procedure.

It is apparent from a consideration of the procedure so far that each employee in the company is well represented in the Personnel Department. There is little occasion for him to nurse a grudge against the management for failing to recognize his qualifications and special desires. In an unusual degree he is in a position to stand or fall by his actual merits and performance. This will make no appeal, it

is true, to a certain class of workers, those who resent any evaluation of their services and who depend upon aggressiveness and display to win them promotion over their equally efficient, but less spectacular, brethren. Fortunately, these are in the minority. The great bulk of the workers in any organization consist of those who are doing their work well day-in and day-out, but who for the most part lack the faculty of self-advertisement and the ability to sell their own services. It is these employees, who after all are usually the most valuable employees, that profit most by the Qualification Card and the procedure which is based upon it.

#### THE VISIBLE INDEX

Some mechanical method of filing is ordinarily employed to bring to the attention of the Personnel Manager the cards of those persons who are particularly qualified for a certain kind of work when it is desired to fill a vacancy of that kind. Many of the so-called visible index systems are admirable for this purpose. Many companies have found that a simple tab system works well in accomplishing this purpose. The top of the Qualification Card is divided into a number of equal spaces, numbered serially. Special meanings are given to these numbers. Usually a tie-up is established between them and the occupational code to which we have referred, and to a departmental code in which the departments are indicated by numerical symbols. This plan provides for the use of different-colored tabs. The code adopted by one company is as follows:

*Employee's present department*—red tab on appropriate number according to departmental code. The company has 40 departments; the code numbers run from 1 to 40.

*Department to which employee desires transfer, or should be transferred*—yellow tab on appropriate number according to departmental code

*Employee's present occupation*—blue tab on appropriate number according to occupational code

*Occupation to which employee desires transfer or should be transferred*—grey tab on appropriate number according to occupational code

*Employee has outgrown present work—danger*—white on "A"

*Employee is not successful in present work—adjustment needed*—black on "A"

*Employee desires further training*—grey on "41"

*Employee's education*—tab on "42"

College graduate or equivalent—grey tab

High school graduate or equivalent—red tab

Completed first year high school—blue tab

*Mental Alertness Score*—tab on "43"

High, over 55—grey tab

Average, 35 to 55—red tab

*Personal Qualities*—tab on "44"

Rating low; requires study and guidance—blue tab

Rating high; deserves recognition—grey tab

*Conflict of two tabs on same number*—crisscross tab

The value of these tabs is obvious in locating the cards of employees possessing special qualifications and in identifying those requiring special attention.

It is found advisable usually to file the Qualification Cards by department. It will be pointed out later how the Qualification Cards prove of immense value to the department heads in becoming acquainted with the qualifications and desires of their own people—qualifications and desires which frequently are hidden from casual observation. Where the Personnel Department has been successful in building up the proper cooperation with the operating departments, it

is frequent practice for the department head to "stop down" and look over the cards of his own people. This is, of course, done more readily if the cards are filed departmentally rather than if they are filed alphabetically or numerically throughout the company as a whole. At times, similarly, the department head retains duplicates of the cards for his own employees, or abstracts from them.

Obviously, these cards cannot fail to be of the greatest value to the department head as well as to the management as a whole. He is enabled to know his personnel assets, the powers and potentialities that lie in his people, in a degree otherwise impossible of attainment. The value of this knowledge will be enlarged upon in later chapters.

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### XIII

## DEVELOPING THE RATING SCALE

Certain qualities cannot be measured, must be judged. Handicaps in reaching reliable judgments. How these difficulties are overcome. The experience of the army. The development of the Graphic Rating Scale. Steps in its construction. Problems accompanying its inauguration. Statistical treatment.

IN the preceding chapter we have considered the steps necessary in the construction of an adequate Qualification Card. We have considered the interview as a method of obtaining the historical data about the employee for entry on his card. The discussion of the Qualification Card, however, has led us to the conclusion that it must be much more than a history card if it is to prove a really valuable instrument of personnel administration. It must be a record of change, of growth and development of progress, of achievement. It must constantly reveal the Capacities and Interests of the worker, not merely as they were when he was employed, but as they are at the present—a running inventory, as it were.

#### CERTAIN QUALITIES MUST BE JUDGED, NOT TESTED

We shall point out in later chapters that certain Capacities are measurable by test, such as strength, dexterity, skill, technical knowledge. The truest test of Capacity, of course, is performance on the job. When the worker has been assigned to a given position for a month or six months or a year, management then has a definite check-up on his abilities in that work. It is a costly process, however, to wait a month or six months or a year to find out if a person is truly qualified in the kind of work in which he claims expert-

ness. If it is practicable to concentrate this experience into a few minutes to a few hours, the saving in time, money, and morale is inestimable.

There are certain human qualities, however, certain Capacities, which probably will never be measurable in this way. They cannot be evaluated in pounds or inches or quarts. They are abstract, yet they exercise a profound influence upon the worker's effectiveness in his work. Here might be mentioned such qualities as initiative, personality, tact, cooperativeness, leadership, and organizing ability, and so forth.

Now in such qualities as these, men have always judged each other. Each of us is constantly reacting upon his associates and each is consciously or unconsciously forming his opinion of his fellows in return. This mental process is usually unconscious. We frequently allow our opinions to build themselves. It is only when we are asked our opinion of a certain individual that we realize that we really have an opinion to express, yet that opinion has been forming throughout our acquaintanceship with the individual without our knowledge.

Just so executives and foremen in business and industrial concerns rely upon judgment to determine the qualifications of their subordinates in these unmeasurable, yet important, characteristics. The responsibility of forming an opinion as to the qualities of his subordinates is always present with every executive—a function, incidentally, which is unfailingly reciprocal. It seems trite indeed to say that every executive must judge his employees. It is part of his job. It is not so trite perhaps to say that great difficulties hedge in this process on all sides and that because of these difficulties the judgment of the executive on certain subordinates is not always accurate, sometimes favoring him at the expense of the management, sometimes favoring the management at the expense of the employee, sometimes doing injustice to both.



## HANDICAPS IN REACHING RELIABLE JUDGMENTS

The first difficulty of this kind is found in the fact that the average executive is working under pressure. He has "to get the work out." He has no time, so he thinks, to spend in refinement of judgment. He is apt to decide that a worker is a good worker or that he is no good by his production alone. He is disinclined to take the time to determine *why* the worker is making good or *why* he is failing to do so.

In the second place, it is naturally difficult to think of abstract qualities in concrete terms. It is difficult to set a measurement upon the degree of tact a person possesses, the degree of cooperativeness which he demonstrates in his relations with others, the degree of initiative with which he is endowed. It is difficult, furthermore, to think of a person in terms of one specific quality without letting our opinion of him in other qualities color our judgment of him in that quality. If an employee, for instance, is obviously industrious and turns out great quantities of work, we may unconsciously be led to think of him as possessing initiative in high degree when a careful analysis of the facts may reveal that he is entirely lacking in this important quality.

In the third place, any spectacular instance of good or poor performance often prejudices the superior in favor of the employee or against him, as the case may be, to a disproportionate degree. A minor error may, in a particular instance, prove especially irritating and costly, regardless of the fact that the worker who committed that error may not have committed a similar error in a blue moon and probably will not commit another in an equally indefinite period of time. It is probable that the single error will cost him dearly in reputation for accuracy in the judgment of his superior. Again, an employee who never had an idea before in his life may stumble upon a suggestion which finds favor in the eyes of his boss; it is probable that this "isolated

instance" will boost his stock in his superior's judgment far more than the facts day-in and day-out warrant.

In the fourth place, everyone is influenced unconsciously by his likes and dislikes. It is perfectly natural that this should be the case. The person who is not so influenced must be a machine indeed, lacking those qualities of friendliness and personal loyalty which we cherish as things worthwhile. Conversely the person who is not inclined to be more severe in his judgment of those whom he does not like is a very remarkable person indeed. And this unconscious bias does color our judgment of our fellows; where the proper methods of judging are not made available it is apt to detract from the reliability and accuracy of our opinions.

In the fifth place, it is difficult to think in terms of empty air. Everyone knows that his ideas become more definite, more specific when he proceeds to put them down on paper.

Lastly, one executive does not think in the same terms as another. One may lay especial emphasis on one quality such as initiative; another may lay special importance upon another such as judgment; the third may lay special importance upon another such as cooperativeness. Again one executive may be generous and liberal in his judgments; another may be severe and exacting. Even if they think alike, one may express his judgment in lenient terms, the other may express his less generously. Obviously it is difficult without the proper instruments to insure that the employees throughout an organization, working under many different executives, will be judged *uniformly*. Because this is true, an element of injustice enters which tends to defeat the purposes of the management and is unfair to the employees and to the executives who are being judged.

The need for a practical rating scale to circumvent these difficulties has long been recognized in industry and business. Rating scales of one kind or another of course have

been in use for years. Executives have been instructed to judge their workers in specific terms such as industriousness, initiative, judgment. They have been provided with printed forms enumerating these qualities and have been instructed to indicate the degree to which each worker possesses each quality by entering opposite it a figure from 0 to 10 to show the degree to which he possesses it. Other embryo scales of the same type used adjectives instead of numbers for the purpose, such adjectives as *excellent*, *good*, *average*, *fair*, *poor*. Such scales have served a very useful purpose in directing the attention of executives to the different qualities in which an employee should be judged. They are a step in the right direction. But rating scales of this type are inadequate on several accounts. In the first place, the qualities are seldom defined. Usually one word, such as *Judgment*, is employed to indicate each. Such a word can be interpreted in many different ways and it is found that in rating his workers in such a quality as Judgment, one executive interprets it in one way, another in another. Again there is no assurance that the word *Good* suggests the same degree of excellence to one person as it does to another. There is no assurance that the figure 8 means just the same thing in the minds of two supervisors. Yet again there is a temptation to refrain, in using such a numerical scale, from rating a person less than 5 unless he is woefully deficient. The tendency to regard 5 as a passing mark is probably a heritage from our school days; there is a feeling that if we rate a person 4 in the given quality we are accusing him of failure; whereas he may be far from a failure in that quality and 4 may really be the proper measure of the degree in which he possesses it.

Obviously the difficulty of making such scales uniform throughout an organization is great. And experience has shown that the information yielded by such scales is usually unreliable.

## THE EXPERIENCE OF THE ARMY

In an earlier chapter reference was made to the contribution made during the war by the psychologists who pooled their experience and made it available to the army heads. One of the most notable products of this experience is the evolution of the Army Rating Scale on which every officer in the army was rated in the five qualities of Physical Qualities, Intelligence, Leadership, Personal Qualities, and General Value to the Service. This Scale employed an entirely different principle. With respect to *each quality*, each officer charged with the task of rating his subordinate officers was instructed first to select five men of equal rank, one possessing it in greatest possible degree, one lacking it entirely, one possessing it in moderate degree, one ranking midway between this average man and the man selected to represent the maximum point and one midway between the average man and the man lacking the quality entirely. When these five men were selected, the officer charged with rating his subordinates then possessed a yardstick against which he could measure his subordinates in terms of that specific quality. If, for instance, Lieutenant C possessed "Physical Qualities" in as great a degree as Captain B but not in as great a degree as Captain A, then he would receive 12 (or perhaps 13 or 14) points in Physical Qualities, the numerical value arbitrarily assigned to second place in Physical Qualities. (See page 205.)

In like manner the rating officer would select five men representing five varying degrees of excellence in each of the other four qualities and with the use of these yardsticks he would judge his subordinates in terms of those qualities.

The Army Rating Scale is reproduced on pages 203 to 206. On this Scale we might assume that Captain Osborn has rated Lieut. Higgins by comparing him with the men he (Captain Osborn) had selected to represent the progressive degrees of excellence in each quality. Because Lieut. Higgins bears comparison favorably with Lieut. Gray in Physi-

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1. Under General Orders 46 and 85 (W. D., 1918), all officers in the Army below the rank of Brigadier General will be rated quarterly according to the Officers' Rating Scale. Circular No. 73 (W. D., 1918), provides that a final rating will be given each officer just prior to separation from the service. The rating of an officer is a numerical expression of the degree in which he possesses the five essential qualifications of an officer; namely, (1) Physical Qualities, (2) Intelligence, (3) Leadership, (4) Personal Qualities, and (5) General Value to the Service. The rating is made by comparing him in each of these respects with officers of the next higher rank.

2. Promotions, discharges and subsequent appointments are determined as a rule by ratings. Making just and accurate ratings is therefore one of the most serious duties of an officer. Proper rating is largely dependent on the possession of an accurate Rating Scale. Each rating officer makes his own scale, using the reverse of this Form.

#### HOW TO MAKE THE SCALE

3. Write on small slips of paper the names of from 12 to 25 officers of your own rank and not above the average age of that rank. They should be men with whom you have served or with whom you are well acquainted. Include officers whose qualifications are extremely poor as well as those who are highly efficient. If these names do not include all the grades for each of the five qualifications, others may be added.

4. Look over your names from the viewpoint of Physical Qualities only. Disregard every other characteristic of each officer except the way in which he impresses his men by his physique, neatness, voice, energy, and endurance. Arrange the names on the slips of paper in order from highest to lowest on the basis of the physical qualities of the men. Select that officer who surpasses all the others in this qualification and enter his name on the line marked Highest under Physical Qualities. Then select the one who most conspicuously lacks the qualities and enter his name on the line marked Lowest. Select the officer who seems about half way between the two previously selected and who represents about the general average in physical qualities; enter his name on the line marked Middle. Select the officer who is half way between Middle and Highest; enter his name on the line

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marked High. Select the one who ranks half way between Middle and Lowest; enter his name on the line marked Low.

5. In the same manner make out scales for each of the other four qualifications (Intelligence, Leadership, Personal Qualities, and General Value to the Service).

6. Each officer whose name appears on the Scale should be one who exhibits clearly and distinctly the qualification and the degree of the qualification for which he has been chosen.

7. The names for Highest and Lowest on each section of the Scale must represent extreme cases. The name for the Middle should be that of an average officer, half way between extremes. High and Low should be half way between the Middle and the extremes. An even gradation of merit is important.

8. In making or using any section of the Scale, consider only the qualification it covers, totally disregarding all the others.

9. In rating subordinates of more than one grade, the best practice is to make separate scales for each grade, using always the names of officers one grade higher than that of the subordinate to be rated. However, in exceptional cases good results have been secured where a Scale constructed of captains is used for rating both lieutenants and captains, and a Scale constructed of colonels is used for rating all ranks of field officers.

#### HOW TO USE THE SCALE

10. Rate your subordinate for Physical Qualities first. Consider how he impresses his men by his physique, bearing, neatness, voice, energy, and endurance. Compare him with each of the five officers in Section I of your Rating Scale, and give him the number of points following the name of the officer he most nearly equals. If he falls between two officers in the Scale, give him a number accordingly (*e. g.*, if between Low and Middle, give him 7,  $7\frac{1}{2}$ , or 8.)

11. Rate the subordinate in a corresponding manner for each of the other four essential qualifications. Under III (Leadership) and V (General Value to the Service), consider which officer he will most nearly equal *after equivalent experience*.

12. In rating, make a man-to-man comparison of the subordinate with the officers whose names appear on your Scale—

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never in terms of numbers directly. Disregard the numerical equivalent until you have made these concrete comparisons.

13. When rating several subordinates, rate all of them on each qualification before adding the total for any one.

14. This is not a percentage system and you should not allow yourself to fix in mind any particular number of points you think the subordinate ought to get.

15. The total rating for a subordinate is the sum of the ratings you give him in the five separate qualities. If directions are followed carefully, the average of any considerable group of officers rated is about 60 points. In other words, 60 points for a lieutenant means that a captain has compared him with the captains he knows and certifies that after equivalent experience he will be equal to an average captain.

16. Each officer below the rank of Brigadier General will be rated by his immediate superior. Ratings will be revised or approved by the immediate superior of the officer making the rating. The revising officer will use his own scale and make ratings independently of those made by the rating officer. Superior officers will see that their subordinates make all ratings according to the Rating Scale system, in order that a just and equitable record may be had for all officers in the Army.

## I. PHYSICAL QUALITIES

*Physique, bearing, neatness, voice, energy, and endurance.  
(Consider how he impresses his men in the above respects.)*

Highest.	<i>Captain Benson</i>	15
High.	<i>Lieutenant Gray</i>	12
Middle.	<i>Lieutenant Spence</i>	9
Low.	<i>Captain Clarke</i>	6
Lowest.	<i>Lieutenant Anderson</i>	3

## II. INTELLIGENCE

*Accuracy, ease in learning, ability to grasp quickly the point of view of commanding officer, to issue clear and intelligent orders, to estimate a new situation, and to arrive at a sensible decision in a crisis.*

Highest.	<i>Captain Clarke</i>	15
High.	<i>Captain Benson</i>	12
Middle.	<i>Lieutenant Jones</i>	9
Low.	<i>Captain Ingemoll</i>	6
Lowest.	<i>Lieutenant Wilson</i>	3

### III. LEADERSHIP

*Initiative, force, self-reliance, decisiveness, tact, ability to inspire men and to command their obedience, loyalty and cooperation.*

Highest	<i>Lieutenant Spence</i>	15
High	<i>Captain Osborn</i>	12
Middle	<i>Captain Mathewson</i>	9
Low	<i>Captain Benson</i>	6
Lowest	<i>Lieutenant Alexander</i>	3

### IV. PERSONAL QUALITIES

*Industry, dependability, loyalty, readiness to shoulder responsibility for his own acts, freedom from conceit and selfishness, readiness and ability to cooperate.*

Highest	<i>Lieutenant Wilson</i>	15
High	<i>Lieutenant Spence</i>	12
Middle	<i>Lieutenant Alexander</i>	9
Low	<i>Lieutenant Anderson</i>	6
Lowest	<i>Lieutenant Jones</i>	3

### V. GENERAL VALUE TO THE SERVICE

*His professional knowledge, skill and experience; success as an administrator and instructor; ability to get results.*

Highest	<i>Captain Abbott</i>	40
High	<i>Lieutenant Alexander</i>	32
Middle	<i>Captain Mathewson</i>	24
Low	<i>Captain Clarke</i>	16
Lowest	<i>Lieutenant Peters</i>	8

Figure 22: War Department—Instructions for rating commissioned officers

cal Qualities, he receives a score of 12 in that quality. Because Captain Osborn judged that Higgins possesses Intelligence (as defined) in equal degree with Jones, Higgins receives a score of 9 in that quality. Similarly in Leadership, Higgins receives a score of 6 because in Osborn's judgment he equals Capt. Benson in that quality. In Personal Qualities he scored 15 because he stacked up favorably against Lieut. Wilson in that quality and in General Value to the Service he scored 24 because in Osborn's opinion he seemed to equal Capt. Mathewson. His total rating (in approxi-



mate figures to indicate his general standing as an officer) is 66 as against a possible score of 100.

This army form of Rating Scale is effective in that it is "self-correcting." It makes allowance for the tendency of one superior officer to rate severely and for another to rate leniently inasmuch as each chooses for himself the men who are to represent the five varying degrees of excellence in each quality. Like everything of the kind, its effectiveness depended upon the care and good sense with which it was used. The ratings of most of the officers, however, were good, and the Rating Scale in a modified form has been made a permanent part of the army personnel procedure.

It is not generally known that in January, 1917, five ranking major generals in the United States Army were directed by the Secretary of War to use this rating scale to rate all the major generals and brigadier generals in so far as they were acquainted with them. One hundred sixty-nine generals were rated. The final rating given to each was the average of the individual ratings of him made by the ranking major generals.

During the following two years, all these officers were tested under war conditions—the most exacting test possible. Only gold can stand such an acid test as that. Their strong points and their weak points were demonstrated. In 1919, consequently, the Secretary of War directed that these officers be rated again. The results were significant.

The ten general officers who were rated highest in 1917 all rose to responsibilities of preeminence during the war. The ten general officers who were rated lowest occupied positions of nominal responsibility or were dropped from the service.

#### ARMY RATING SCALE GENERALLY INAPPLICABLE TO INDUSTRY

The army form of Rating Scale has been found generally inapplicable to business and industrial conditions by virtue of the fact that it is relatively cumbersome in use. The construction of the master scale and the mental balancing

of one man against another call for an expenditure of time and effort which the average executive is not in a position to contribute. It was found that in addition to fulfilling the need for accuracy, the industrial rating scale must fulfil the need for ease of operation. The success of any rating procedure necessarily depends upon the good-will and the intelligent cooperation of the executives and foremen under pressure of daily routine. It is very difficult to win this good-will and cooperation when the mechanical difficulties involved in the use of the scale are great.

#### THE DEVELOPMENT OF THE GRAPHIC RATING SCALE

Considerable research work has been devoted to the development of a rating scale for industrial use which would combine accuracy in results with ease in operation. This research has led to the development of the Graphic Rating Scale.

In one form the Graphic Rating Scale is a sheet or card so printed that the executive can indicate his judgment of the subordinate in each important quality by entering a check mark at the proper point on a horizontal line, one end of which represents the maximum degree in which anyone can possess that quality, the other the minimum degree in which anyone can possess that quality. The intermediate steps are indicated by words and phrases pertaining specifically to the quality itself; such general adjectival phrases as Excellent, Good, and Average are avoided wherever possible. One of these scales is given to the executive for each subordinate whom he is to rate. He indicates his opinion of him in the several important qualities by entering check marks along the several lines somewhere between the minimum and maximum. The scales are then scored by stencil in the Personnel Department and the scores, after statistical treatment to allow for individual rating tendencies, are entered on the Qualification Cards of the employees who are rated. Thus the Qualification Cards become more than his-

tory cards; they indicate the employee's present equipment in those abstract qualities such as Judgment, Initiative, Enterprise, and Cooperativeness which influence his effectiveness in his work so greatly.

It is obvious that the Graphic Rating Scale overcomes most of the weaknesses that are inherent in the adjectival and numerical scales and in the Army Man-to-Man Scale. Experience has shown that when it is carefully administered it yields ratings which are most apt to be reliable and that executives and foremen usually cooperate in fullest measure in their use. The Scale is easy to use; undue time and effort are not required.

#### THE EFFECTS OF THE RATING SCALE

The need for such a Scale in personnel administration becomes increasingly apparent. In the first place the Scale is educational in effect. It impresses the executives and supervisors with the importance of thinking of their employees not in general terms, but in terms of the particular qualities which the management regards as important. It impresses them with the inadequacy of judgments which are vague, not specific.

Again, it has a distinct educational effect upon the employees themselves. Few persons are given to intelligent self-analysis. The average worker may be a gross offender with respect to Cooperativeness or Initiative and yet never be aware of the fact. There may be distinct reasons of this kind for his failure to progress; yet his only reaction is that he is not getting ahead and he doesn't know why; "he is in a blind-alley job" or possibly "the management has it in" for him. The Rating Scale serves to bring to his attention those important qualities which the management expects him to possess in as high degree as possible. Point then is given to his self-analysis. He is better enabled to appraise himself accurately and to discover those qualities in which he is deficient as well as those in which he excels. This edu-

cational effect upon the employee himself is greatly enhanced by the consideration, not only of the qualities themselves, but of the ratings which his superiors give him in those qualities. This procedure will be discussed in Chapter XXII.

In the second place, the Rating Scale seems to help make uniform the standards by which different executives and supervisors judge their workers. They make it possible to avoid snap judgments at those times when sudden decisions affecting the employees must be made, such as those having to do with salary increase, with transfer or promotion or even with dismissal.

The Scale helps set forth the personal qualities the company considers important, in order that one executive will not emphasize one set of qualities and another an entirely different set of qualities.

It helps the executive to base his judgment of the subordinate not upon some recent outstanding instance of good or poor performance, but upon the character of his performance day-in and day-out.

The Scale furthermore brings to the attention of the management the qualities possessed by individual employees and the degree in which each is improving periodically his standing in those qualities. It makes it possible for those whose development is rapid or whose ability is unusual to be considered by the management for a wage increase or for promotion or assignment to work in which his superior qualities can be utilized.

It helps make it possible for management to identify those employees whose inadequacy of performance in their present work may point out the advisability of transferring them to other work where they will be more valuable to the company. It offers the opportunity for constructive advice on the part of the Personnel Department or department head designed to help the employee overcome his weaknesses and improve still further his rating in those qualities in which

he is already strong. It helps the Educational Department to furnish special training most advantageously.

Generally speaking, it is found that only two forms of the Rating Scale are needed in any organization, one for those in executive or supervisory positions and one for those who are in rank-and-file positions. Copies of such Scales are shown on pages 212, 213, 214, and 215.

#### STEPS IN THE CONSTRUCTION OF THE GRAPHIC RATING SCALE

The experimental development of the Graphic Rating Scale is given in detail in the Appendix. With the facts from this experimental development in hand the problem of constructing the Rating Scale becomes one of relative simplicity. It resolves itself into the following steps:

First, the selection of the qualities in which the employees are to be rated. This is obviously a matter for the determination of each company contemplating the use of the Scale. Care should be taken to select only those qualities which are important, which are capable of clear definition and which are capable of measurement. The first two of these three conditions cannot be misunderstood. A word of explanation is in order, however, with reference to the third. There are certain qualities which do not lend themselves to Rating Scale measurement. These are qualities which apparently exist in an individual or do not exist, but which do not exist in moderate degree. Among such qualities is loyalty. According to accepted interpretation of the term, a person is either loyal or he is not loyal. It is hard to place an individual between these two extremes. Another such quality is honesty. A person is either honest or he is not honest; we never say of a person that he is fairly honest. Another quality which has no place on a Rating Scale largely because it is ascertainable by more objective methods is that of health.

Obviously different qualities will be used in the Rating Scale for Executives than are used in the Rating Scale for

(SCALE B)  
**GRAPHIC RATING SCALE**  
FOR  
EXECUTIVES, DEPARTMENT HEADS, FOREMEN AND SUPERVISORS

**INSTRUCTIONS FOR MAKING OUT THIS REPORT—**

Before attempting to rate this supervisor, re-read carefully the definition of each quality immediately before rating the supervisor in that quality. Base your rating on the work this supervisor is actually doing at this time. Indicate your rating in each quality by placing a check (✓) on the line just where you think it ought to be. For instance, if in Quality I, you think the person you are rating ranks somewhere between Indifferent and Favorable, put your check on the line somewhere between these two points.

Afterwards read Supplementary Instructions on reverse.

Name of Executive Doing Rating <u>E. H. WILSON</u> Department or Division <u>SALES</u> Group or Unit <u>RESEARCH</u>	Name of Supervisor Being Rated <u>GEO. BARKER</u> Supervisor's Department or Division <u>SALES</u> Supervisor's Group or Unit <u>RESEARCH</u>
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QUALITIES	REPORT	
I. Consider his success in winning confidence and respect through his appearance and manner.	<div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; padding-bottom: 2px;"> <span>Impress</span> <span>Favorable</span> <span>Indifferent</span> <span>Unfavorable</span> <span>Repellent</span> </div>	4
II. Consider his success in doing things in new and better ways and in adapting improved methods to his own work.	<div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; padding-bottom: 2px;"> <span>Highly Constructive</span> <span>Resourceful</span> <span>Fairly Progressive</span> <span>Routine Worker</span> </div>	7
III. Consider his success in winning the cooperation of his subordinates, welding them into a loyal and effective working unit.	<div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; padding-bottom: 2px;"> <span>Capable and Forceful Leader</span> <span>Handles Workers Well</span> <span>Fails To Command Confidence</span> <span>Frequent Friction In His Department</span> </div>	6
IV. Consider his success in organizing the work of his department or unit, both by delegating authority wisely and by making certain that results are achieved.	<div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; padding-bottom: 2px;"> <span>Effective Even Under Difficult Circumstances</span> <span>Effective Under Normal Circumstances</span> <span>Lacks Planning Ability</span> <span>Inefficient</span> </div>	8
V. Consider his success in making his department or unit a smooth running part of the whole organization; his knowledge and appreciation of the problems of other departments.	<div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; padding-bottom: 2px;"> <span>Exceptionally Cooperative</span> <span>Cooperative</span> <span>Not Helpful</span> <span>Difficult To Handle</span> <span>Disobedient</span> </div>	10
VI. Consider his success in improving his subordinates by imparting information, creating interest, developing talent and arousing ambition.	<div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; padding-bottom: 2px;"> <span>Develops Workers of High Caliber</span> <span>Develops Workers Satisfactorily</span> <span>Neglects To Develop Workers</span> <span>Discourages and Mismanages Workers</span> </div>	8
VII. Consider his success in applying specialized knowledge in his particular field, whether by his own knowledge of ways and means or through his use of sources of information.	<div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; padding-bottom: 2px;"> <span>Expert</span> <span>Competent</span> <span>Uninformed</span> <span>Neglects and Mismanages the Field</span> </div>	9

DATE <u>July 10, 1923</u>	Final Rating <u>B</u>	Total Rating <u>52</u>
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- OVER -

Figure 23a: Face of Graphic Rating Scale for executives, department heads, foremen and supervisors

Workers. The Rating Scales which we reproduce here indicate the qualities which experience shows lend themselves for use in this connection. The Scale for Executives includes such qualities as Personality, Originality, Leadership, Organizing Ability, Cooperativeness, Ability in Developing

SUPPLEMENTARY INSTRUCTIONS TO RATOR	
On the face of this Scale, you have entered by a check (✓) your judgment of the subordinate in seven specific qualities regarded as important by the management. In addition, you are requested to check (✓) the appropriate boxes below, stating your reasons, advice, etc., in each instance, and to give the desired information in 6 and 7.	
1. This employee (individual being rated) should be considered for promotion at the first opportunity.	<input checked="" type="checkbox"/>
Reasons and suggested line of promotion: <i>His personality is against him but he is popular with his subordinates and has a learning to assist in the of Sales Research</i>	
2. He should be transferred to other work.	<input type="checkbox"/>
Reasons and suggested line of work: _____	
3. He is ambitious to progress and should be advised how best to qualify himself for advancement.	<input checked="" type="checkbox"/>
Remarks: <i>Wants advice as to best courses of study to take up</i>	
4. He desires advice as to his present and future opportunities.	<input type="checkbox"/>
Remarks: _____	
5. He is taking special courses in <i>Business English</i>	
6. He desires special or further training in <i>Statistical procedure</i>	
_____	
7. A conference with the Personnel Division is desired with reference to this employee.	<input type="checkbox"/>

THE GRAPHIC RATING SCALE FOR EXECUTIVES	
ITS PURPOSE AND USE	
1. The Graphic Rating Scale is a practical method through which each executive's and each supervisor's ability and fitness for increased responsibilities can be known quickly, with a reasonable degree of accuracy and with uniformity throughout the Company.	
2. Each department head, chief clerk, etc., rates the group heads, assistants and others in supervisory positions who are subordinate to him. Conversely each person in an executive or supervisory position is rated by several (usually three) superiors. This ensures a well-balanced judgment in each instance. Where marked differences of opinion exist, the reasons are discussed to find the facts.	
3. This Rating Scale has been devised after careful consideration of the best practices throughout the country. It makes it possible for the department head, etc., to form and express his judgments accurately and with minimum effort. It protects the subordinate against snap judgment and against hasty and ill-considered appraisal of his abilities.	
4. Each executive and supervisor in the Company is rated periodically, every few months. This data is entered on the individual's Qualification Card and is considered in salary increases and in promotion.	
5. All ratings are confidential. Any person desiring information as to his own ratings can obtain it upon his Qualification Card in the Personnel Division.	

Figure 23b: Reverse of Graphic Rating Scale for executives, department heads, foremen and supervisors

Workers, Technical Ability. That for Workers includes such qualities as Ability to Learn, Personal Productiveness (quantity of work achieved), Workmanship (quality of work), Industriousness, Initiative, Cooperativeness, and Knowledge of Work.





SUPPLEMENTARY INSTRUCTIONS TO RATOR	
<p>On the face of this Scale, you have entered by a check (✓) your judgment of the employee in seven specific qualities regarded as important by the management. In addition, you are requested to check (✓) the appropriate boxes below, stating your reasons, advice, etc., in each instance, and to give the desired information in 5 and 6.</p>	
<p>1. This employee (individual being rated) is qualified for a supervisory position. <span style="float: right;"><input type="checkbox"/></span></p> <p>Remarks: _____</p>	
<p>2. He (she) should be considered for promotion at the first opportunity. <span style="float: right;"><input type="checkbox"/></span></p> <p>Reasons and suggested line of promotion: _____</p>	
<p>3. He should be transferred to other work. <span style="float: right;"><input checked="" type="checkbox"/></span></p> <p>Reasons and suggested line of work: <i>Her inability to cooperate with others hampers her especially in her present work</i></p>	
<p>4. He is ambitious to progress and should be advised how best to qualify himself for advancement. <span style="float: right;"><input type="checkbox"/></span></p> <p>Remarks: _____</p>	
<p>5. He desires advice as to his present and future opportunities. <span style="float: right;"><input checked="" type="checkbox"/></span></p> <p>Remarks: <i>Should be advised with reference to her personal relationships - is not cooperative.</i></p>	
<p>6. He is taking special courses in _____</p>	
<p>7. He desires special or further training in _____</p>	

THE GRAPHIC RATING SCALE
ITS PURPOSE
<p>1. The Graphic Rating Scale is a practical method through which each employee's ability and fitness for increased responsibilities can be known quickly, with a reasonable degree of accuracy and with uniformity throughout the Company.</p>
<p>2. Each department head, chief clerk, group head, etc., rates the workers immediately subordinate to him. Conversely each employee is rated by several (usually three) superiors. This ensures a well-balanced judgment in each instance. Where marked differences of opinion occur, the reasons are discussed to find the facts.</p>
<p>3. This Rating Scale has been devised after careful consideration of the best practices throughout the country. It makes it possible for the executive to form and express his judgments accurately and with minimum effort. It protects the employee against snap judgment and against hasty and ill-considered appraisal of his abilities.</p>
<p>4. Each employee in the Company is rated periodically, every few months. This data is entered on his Qualification Card and is considered in salary increase and in promotion.</p>
<p>5. All ratings are confidential. Any person desiring information as to his own ratings can obtain it from his Qualification Card in the Personnel Division.</p>

Figure 24b: Reverse of Graphic Rating Scale for workers in non-executive positions

his own way. If he is permitted to do so, the important characteristic of uniformity in the rating procedure is destroyed. One executive, for instance, may interpret Cooperativeness as cheerful compliance with instructions, another may interpret it as the ability to make one's work

harmonize with that of the organization as a whole. Another may think of it as that kind of helpfulness to others that prompts one instinctively to anticipate their wishes and comply with them unasked. Here are *three* different kinds of Cooperativeness. The person may rate low in one and high in another. Consequently, if one executive is interpreting the term in one way and another executive is interpreting it in another, it is obvious that the ratings lose all comparative significance.

Experience has demonstrated further that it is well to omit the title of a quality even though it is followed by a definition. The natural tendency is for the rater to read the title, to assume that he understands it and skip the definition. It seems established that the best practice in this respect is to use the definition alone as a means of identifying a quality. The rater is then compelled to read the definition; there is no short cut. Because he is compelled to read it, he necessarily forms a truer conception of its meaning.

When the qualities have been carefully selected and when the definition of each has been carefully worked out from the point of view of clarity and precision of meaning, then, as the third step, attention is given to those phrases and adjectives which are to be used to indicate the varying degrees with which a person may possess each quality. Ordinarily it is advisable to use five such adjectives or phrases to indicate five progressive degrees within each quality, from the extreme minimum to the extreme maximum. There is nothing binding about this, however. Under certain circumstances it is undoubtedly advisable to use six, four, or even three steps within each quality.

As implied above, it is important that these adjectives and phrases should be selected with particular reference to the quality itself. This gives them special significance. Under Quality I on the Rating Scale for Workers the phrase "Learns with Ease" is much more significant than the word "Good" would be. The word "Dull" is much more

significant than the word "Poor" would be. Such carefully selected adjectives and phrases picture the worker to the rater with reference to that particular quality in a way which is otherwise quite impossible. They direct our attention without effort on our part to the degree with which the person being rated possesses that quality. When we read the phrase "Learns with Ease," the other qualities (such as Industry, Cooperativeness, Knowledge of Work) shrink into the background of our minds and we think only of the relative ease with which the worker is able to learn new methods.

Conversely, general adjectives and phrases such as Good, Average, Poor are avoided wherever possible. They are disturbing to the person's ability to concentrate on the quality itself. When one reads the word "Ordinary," for instance, he is not restricted to a consideration of the individual's ability to learn. He is permitted by the nature of the word to think of other qualities as well. The word is used to indicate the middle degree of proficiency in "Ability to Learn" on the Rating Scale for Workers only because no more specific phrase had suggested itself for the purpose at the time this scale was printed.

The fourth step in the consideration of the Scale is that which is concerned in the spacing of these adjectives and phrases under the horizontal lines. While in some cases it is natural for the phrases to be equidistant one from another, it frequently happens that unequal spaces are more truly indicative of the differences in meaning on the part of the phrases themselves. This is a matter of good judgment at first and later of experimentation. Consider the third quality on the Executive's Rating Scale, for instance. Here there are four phrases to indicate four different degrees of Leadership. The lowest is that suggested by "Frequent Friction in his Department." The next lowest is "Fails to Command Confidence." These are both negative in their significance. The next "Handles Men Well," however, is positive in significance and seemingly is nearer in

meaning to "Capable and Forceful Leader" than it is to "Fails to Command Confidence." It is proper, consequently, that the space between these two middle degrees should be greater than that between the others.

It should be pointed out here that the person who is rating his subordinate is under no obligation to put his check mark immediately above any of these adjectives and phrases. He is permitted to make his refinements of judgment as fine as he pleases by placing his check mark between these phrases if he chooses to do so. If, for instance, the supervisor being rated usually handles men well but occasionally destroys confidence by losing his temper, his superior is perfectly justified in putting his check mark (✓) somewhere between "Handles Men Well" and "Fails to Command Confidence" at the point which seems truly to represent his judgment.

#### PROBLEMS MET IN INAUGURATING THE SCALE

It is important in inaugurating the Rating Scale to sell the idea to the executives and employees. It must have their favorable attitude if it is to prove successful. It is inadvisable, consequently, to attempt to introduce the Scale by edict or by memoranda from the General Manager's office. Departmental meetings should be held in which the principles and purposes of the Scale can be explained and questions answered. It must be pointed out that the Scale offers assurance to all that their qualities cannot be overlooked and that advancement in position and pay depends not upon pull or upon display but upon performance. At these meetings it is usually advisable to have the facts in printed form as well, for distribution to those who are present, in order that after they withdraw from the meeting they will have the opportunity to refresh their minds as to the facts brought out in the conference. The following excerpt from the statement used by one company for this purpose sug-

gests the facts which should be impressed upon the persons present:

Through the use of the Rating Scale the department head, or others, can judge his subordinates more accurately than he can without it and he can do so with less effort and with less expenditure of time. Vagueness of judgment is eliminated; his opinion is crystallized and made a definite matter of record; it is formed along certain specific lines, the same specific lines along which all the other department heads and executives are judging *their* subordinates. The Rating Scale ensures, consequently, a more uniform procedure throughout the Company.

The subordinate executive or supervisor being rated is assured of a deliberate analysis of his special abilities. He does not have to push himself forward to obtain recognition. There is an old saying "The squeaky hinge gets the oil." In many organizations the employee who makes the most noise, who devotes his effort to self-advertisement rather than to self-development, is the one who gets the increase in pay. The Rating Scale does away with that kind of unintentional injustice to the capable, but unspectacular, worker. His abilities are known as well as those of his more aggressive associate, and his promotions and advances in salary depend upon them. He is assured of a fair rating because he is rated by several superiors, not one.

Each individual's latest ratings in these seven qualities are to be entered on his Qualification Card in the Personnel Officer's possession and will be considered by the Salary Committee in granting salary increases and by the Personnel Officer in selecting individuals for positions of greater authority and responsibility.

A table is prepared showing the names of the persons who are to be rated, and for each such person the names of three superiors are selected to rate him. These superiors should be persons who know him in his work, who are able to form their opinions through personal knowledge of how he fulfils the responsibilities and duties of his position. The importance of three raters for each person is apparent, as it is possible thus to get a well-balanced judgment in each case. This insures the individual and the company against an unfair rating arising out of one executive's bias or misinformation.

When this table is made, a cross-list is prepared showing under the name of each rater the persons whom he is to rate. Rating Scale blanks are then prepared with the names of the raters and the persons whom they are to rate. These are grouped according to each rater and are given to him after the meeting with instructions that,

(a) He should rate his subordinates when he can give it his undivided attention;

(b) He should read the phrasing of each quality with great care in order to have a clear idea of its exact meaning;

(c) He should indicate his judgment of the degree to which the subordinate possesses the first quality (ignoring for the moment all the other qualities) by putting a check mark (✓) at the proper point on the horizontal line opposite I, then proceed in like manner to rate the employee in the other qualities as well.

Some companies utilize the reverse of the Rating Scale to good purpose by requesting the rater to enter there certain supplementary information which will be of value to the management in effecting the proper adjustment of the worker to his work. Pages 213 and 215 show the reverse of two Scales used for this purpose. The rater is requested to place checks (✓) in the appropriate boxes and to supplement such checks by his reasons, for them. With reference to further training, he is also requested to specify those courses which the employee is now taking and that further training or education which he would like to acquire if the opportunity were made available to him.

#### SCORING THE RATING

When the executive has rated his subordinates in this manner, he delivers the Rating Scales bearing his check marks to the Personnel Department where they are scored by stencil. This is done by laying the stencil, Figure 25,

10	9	8	7	6	5	4	3	2	1	0
----	---	---	---	---	---	---	---	---	---	---

Directions: Place the stencil so that the scale coincides with the line for Quality I. Note in which division the check mark falls. Enter this number in the column at the right of the line.

Proceed similarly to score the report for Qualities II, III, IV and V

Figure 25: Scoring Stencil

along each horizontal line and entering in the column at the right the figure for the space in which the check mark falls. These figures are added and the total entered in the space in the lower right-hand corner. It is advisable to have the scoring clerk use a blue pencil in scoring as it makes future reference easier.

When the scoring has been completed the Rating Scales are sorted according to the executives who made the ratings and then arranged in alphabetical order for each executive. So far as possible each executive should make his rating on at least 30 subordinates, preferably 50, as a study of this number of ratings will make it possible to determine his rating tendency. When they have been arranged thus, the ratings are ready for the statistical treatment that is necessary in order to correct the total ratings to compensate for the individual's tendency to be lenient or to be exacting and in order to arrive at the final ratings which in the case of each person rated are averaged before entry is made on the Qualification Card.

#### THE STATISTICAL PROCEDURE OF SHOWING RATING TENDENCIES

The statistical procedure involved in correcting ratings to allow for individual tendency to rate high or to rate low, and so forth, makes it possible to divide these total ratings in the case of each rater into five classes (more if desired)

of which A is the highest class and E the lowest. Assuming that, except in very unusual cases, the executives throughout a company will have supervision over subordinates who are of approximately the same general degree of excellence in these several qualities, no one executive will be in charge of a department which includes only very superior workers, nor will another be in charge of a department which is composed of very inferior workers. With this as a reasonable hypothesis, the Spot Card, shown in Figure 26, is used to determine in the case of each rater the numerical limits of his highest 10%, of his next highest 20%, his next highest 40%, his next lowest 20%, his next lowest 10%.

Each rating of a subordinate by his rater is indicated on the Spot Card by a circle drawn around the lowest free spot over that score. Thus the Spot Card for an executive who has rated 50 subordinates may have the appearance of that in Figure 26. Each circle on this card indicates a score given by him to one of his subordinates. The lowest score given, for instance, was 17; the highest score was 64. The remaining 48 scores lie between these two extremes. It is proposed now to break these down into the percentages named above. Beginning at the top, consequently, we count 5 circles (10% of the 50 ratings). This brings us down to the point between 56 and 57 where we draw a vertical line. Beginning at that point we count 10 (20% of the 50 ratings). This brings us down to the point between 46 and 47. Beginning there, we count 20 (40% of the 50 ratings). This brings us to the point between 34 and 35. Beginning there we count 10 (20% of the 50 ratings). This brings us to a point between 22 and 23. Beginning there we count 5 (10% of the 50 ratings). This brings us down to 17.

The figures appearing where these lines of separation fall we transfer to the box in the right-hand upper corner of the card. This box then indicates that for Mr. Henderson a score from 17 to 22 is equivalent to a final rating of E; that a score from 23 to 34 indicates a final rating of D; that a



# KEY TO FINAL RATINGS

7	to 22	inclusive =	10 E
23	to 34	inclusive =	20 D
35	to 46	inclusive =	30 C
47	to 56	inclusive =	40 B
57	to 70	inclusive =	50 A

Name of Executive Mr. Henderson

Branch \_\_\_\_\_ Dep't. \_\_\_\_\_

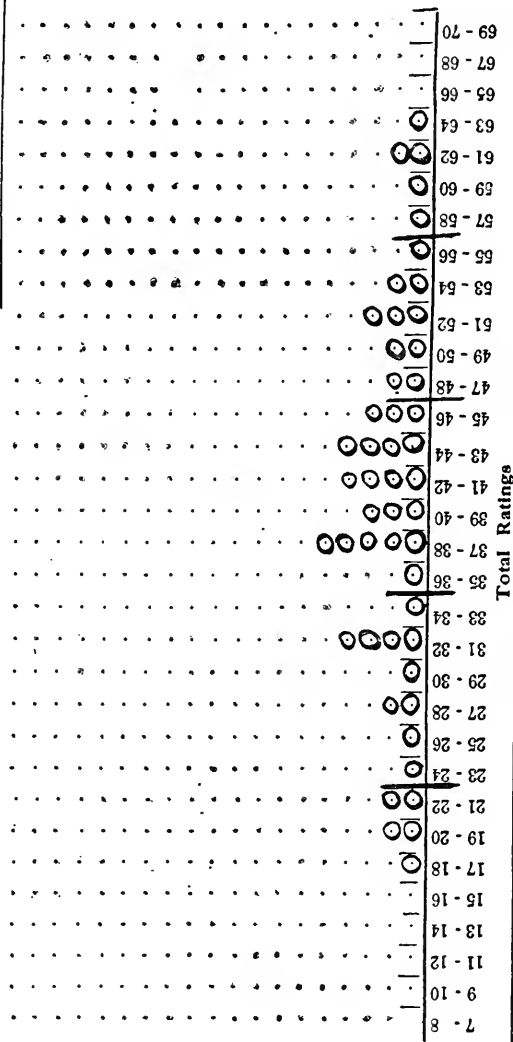


Figure 26: A Typical Spot Card

score from 35 to 46 indicates a final rating of C; that a score from 47 to 56 indicates a final rating of B; and that a score of 57 to 70 indicates a final rating of A.

Mr. Henderson's rating tendency has, consequently, been determined with reasonable accuracy. This accuracy may be further refined by considering more than 50 ratings, but experience shows that a consideration of 50 ratings in this manner will indicate the rater's tendency to rate high or to rate low with sufficient accuracy for all practical purposes.

Now we are able to translate the scores given by Mr. Henderson in the use of the Rating Scale into these five final classifications by finding within which range each falls. If Mr. Henderson has rated Miss Jones 33, for instance, she receives a final rating of D. If he has rated Miss Brown 58, she receives a final rating of A. It is not necessary continuously to spot Mr. Henderson's ratings in this manner. The numerical ranges of his five final classifications have now been established and all his future ratings can be checked against these numerical limits and the final ratings evolved without further statistical procedure. It is apparent, therefore, that the bulk of the clerical work involved in the correction of ratings for the rating tendency of executives is incurred during the initial use of the Scale. The subsequent translation of the numerical ratings into final ratings is a simple matter of comparison with the key which has been established in the case of each rater.

#### PROCEDURE IN RECORDING RATINGS

The Rating Scale is not automatic. Like any other good tool it calls for a certain amount of skill and experience and the management of an industrial or business concern must not expect perfect results at the beginning. Constant consultation is needed to enable the average executive to use the Scale intelligently and to arrive at fair ratings. The respon-

sibility for this educational work necessarily falls upon the Personnel Manager.

When the final ratings are evolved in the case of each subordinate being rated through the procedure of checking the numerical ratings in each case against the rater's key (upper right-hand corner of the Spot Card), such final ratings of the employee are averaged and the average rating is entered in the appropriate box on the Qualification Card. Where the three executives have rated a certain employee B, the average will, of course, be B. Where one has rated him B, another C, another D, the average of course will be C. Where one has rated him C and two have rated him B, the average will be B—.

Where there appears to be a wide discrepancy in opinion between two executives who rate an employee, it is good practice to arrange a conference of the differing raters to find the facts which prompt them to judge him so differently. As a matter of fact such wide differences are rare. Yet it is sometimes found that two step differences will exist, e. g. one executive will rate the individual B and another D. In the case of such differences in rating, these conferences usually reveal that one executive possesses information which the other lacks or has interpreted certain facts wrongly. Such differences, of course, should be reconciled, but where honest differences of opinion persist after the facts have been discussed, no further attempt at reconciliation should be made. The average should be accepted and, as indicated above, entered on the Qualification Card.

In Chapter XXII attention will be devoted to the desirability of rating executives and employees *periodically*. The purpose of the Rating Scale is not merely to yield information about the employee's Capacities. It does more than that. It serves to give point to the employee's effort to improve his Capacities and creates a basic, underlying incentive to do so. The use of the Rating Scale in fulfilling this function will be explained in that chapter.

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## XIV

### MENTAL ALERTNESS TESTS

Importance of mental alertness. Testing the tests—the “firm rank.” Typical results. Comparison of mental alertness scores of men and women office employees. Significance of relation of mental alertness scores of applicants to mental alertness scores of employees. Significance of the mental alertness scores of the women office employees in four companies. Mental alertness of messenger boys. Comparative data from three companies. General distribution curve of messenger boys. Foremen’s training and mental alertness.

Most people agree that mental alertness is an important asset for success in commerce and industry. Those of a high degree of mental alertness are marked by an ability to size up a situation quickly, to see its relation to other situations and to arrive at a sound judgment as to the best solution. Such ability is what every executive looks for in those he entrusts with responsibility.

To measure such ability, practical psychologists have experimented with various types of mental tests during the past 15 to 20 years. Out of this extensive, world-wide research certain types of tests have been developed that measure with considerable accuracy this ability that is called “mental alertness.”

When war was declared, in April, 1917, American psychologists pooled their knowledge and experience in an effort to provide a set of tests that would aid Army authorities in picking out of the stream of recruits and drafted men those who were capable of handling responsible executive positions in the Army. These tests were applied to 1,700,000 men of the Army during the war and have since the war been applied to possibly several hundred thousand more in business organizations and in schools.

These Mental Alertness Tests played an important part

in assisting in the scientific placement of soldiers in positions for which they were best fitted.

It appeared that such tests would find a similar usefulness in the solution of industrial personnel problems involving selection, placement, transfer, and promotion of various types of employees.

Profiting by the Army experience, a set of Mental Alertness Tests were devised that were especially adapted to meet commercial and industrial needs, and are generally known as "Series I."<sup>1</sup> These tests involve arithmetical reasoning, quickness of thinking, quickness and accuracy of judgment, clearness of perception, degree of comprehension, and ability to follow specific instructions. The time limits were made so short that the most alert person would not be able to make a perfect score. Each test was made easy enough so that those less mentally alert would be able to make some score. To make the tests as free as possible from the influence of formal schooling, no difficult and unusual words were used in any of the tests. To avoid the ridiculous or absurd, especial effort was made to eliminate any false or foolish statements or any problems calling for knowledge of an unusual or strange nature.

#### THE GIVING OF MENTAL ALERTNESS TESTS

The tests are so designed that they can be given to individuals or groups. They can be given by an intelligent clerk after a few hours of instruction. The mental alertness rating of as many as 100 employees in an office or department can be secured simultaneously if a large enough room, provided with facilities for writing, is available. Such an examination takes less than 20 minutes. Scoring the papers is a mechanical process involving the use of specially prepared stencils. It is estimated that 100 papers can be scored by six clerks within two hours. In routine employment work, certain periods of time can be set aside dur-

<sup>1</sup>C. H. Stoelting & Co., of Chicago, are exclusive agents for these tests.

ing the day for testing all applicants who are ready. If the applicants are few in number, they can be tested individually.

In giving Mental Alertness Tests, tact on the part of the person conducting the tests is essential. Applicants for a position are easily embarrassed and are inclined to be afraid of anything that looks like an examination. Unless they are shown consideration, they may become panicky or rebellious, and make low scores or even refuse to take the tests. It is accordingly the task of the tester to present the tests in such a manner that all the applicants will make the highest scores of which they are capable. The tests should not be presented as a method of discovering the incompetent, but as a method of demonstrating the type of work each applicant can do best, or as a method of accomplishing something that appeals to the applicants as worth while.

In giving the tests to employees the greatest tact is essential that the tests should not be regarded as a subtle method of discovering weaknesses that might result in a discharge. The first persons in a company to take the tests should be the president and the other well-known officials. Every employee who takes the tests should regard it as a privilege which he shares with his superiors.

In a company dominated by the scientific spirit in which experiments are highly regarded, the giving of the tests may be presented as a desirable experiment. This method is recommended by an experienced executive in another chapter.

The actual nature of any Mental Alertness Test is most easily comprehended by taking the test. Readers who have not previously taken Series I should do so now. To take the test you will need to have an assistant who will note the amount of time allowed for each section of the test and who will direct you to pass on to the next part of the test when the allotted time has expired. Series I is reproduced on pages 231 to 236. If you want to obtain a fair rating, you should not read this test in advance. You should not even

turn over these pages until your assistant is ready to direct you. He will need to have a watch with a second hand, and he will need to be very careful to call time exactly as indicated under the test on each page.

Your final score is the sum of the following:

1 point for each correct answer in Test A.

Possible score 17

$\frac{1}{2}$  point for each correct answer in Test B.

Possible score  $12\frac{1}{2}$

1 point for each correct answer in Test C.

Possible score 25

1 point for each correct answer in Test D.

Possible score 14

1 point for each correct answer in Test E.

Possible score 20

1 point for each correct answer in Test F.

Possible score 12

A score of  $100\frac{1}{2}$  is possible, but no one has ever closely approximated such a score.

#### TESTING THE TESTS—THE "FIRM RANK"

The office manager of a large office selected 10 of his best women employees, 10 of his poorest, and 10 of intermediate ability. All 30 had had about the same length of experience and were mostly engaged in the same type of work. All 30 were then placed in rank order from best to poorest by the office manager and also by two of his assistants. These independent rankings were then combined into a single rating called the "Firm Rank."

Before this Firm Rank was announced, the 30 employees were given Series I. The employee making the highest score



# TEST A

Get the answers to these questions as quickly as you can. Then write the answer after the question.

Use the side of the page to figure on if you need to.

If you cannot get the answer to a question, pass on to the next one.

1. How many are 10 apples and 5 apples? Answer \_\_\_\_\_
2. If you drive 6 miles an hour for 2 hours, how far do you drive? Answer \_\_\_\_\_
3. If 24 men are divided into 6 equal gangs, how many men will be in each gang? Answer \_\_\_\_\_
4. Jim had \$15 in the bank and drew out \$7. How much did he have left? Answer \_\_\_\_\_
5. If you save \$10 a month for 3 months, how much will you save? Answer \_\_\_\_\_
6. How many are 8 men and 9 men and 8 men? Answer \_\_\_\_\_
7. How much will you have to pay for 3 one-cent postage stamps and 3 two-cent postage stamps? Answer \_\_\_\_\_
8. How many pencils can you buy for 60 cents at the rate of 2 for 5 cents? Answer \_\_\_\_\_
9. If you buy 3 packages of tobacco at 9 cents each and a pipe for 50 cents, how much change will you get back from \$5.00? Answer \_\_\_\_\_
10. If it is 75 miles from Dayton to Columbus and the railroad fare is 3 cents a mile, how much will it cost you to make two round trips? Answer \_\_\_\_\_
11. If your board cost \$4 a week, your room \$2.50, you save \$3.25 and your weekly wages are \$21, how much do you have left each week for other things? Answer \_\_\_\_\_
12. If the inside dimensions of a box are 10 feet by 5 feet 6 inches by 3 feet, how many cubic feet will it hold? Answer \_\_\_\_\_
13. How long could you keep 4 electric lights going on the amount of current required to keep 3 similar lights going 2 hours? Answer \_\_\_\_\_
14. If 4 three-ton trucks require 3 trips apiece to remove a pile of scrap, how many similar trucks making only one trip each would be required to remove half the pile? Answer \_\_\_\_\_
15. If 144 cubic feet of water are drawn from a tank 12 feet long and 6 feet wide, how much is the surface of the water in the tank lowered? Answer \_\_\_\_\_
16. An aeroplane flew 3 miles in 72 seconds. How many miles an hour is that? Answer \_\_\_\_\_
17. How many hours is it from 8 A. M. May 27 to 10 P. M. July 3? May has 31 days and June has 30. Answer \_\_\_\_\_

Figure 27: First page of Mental Alertness Test. (Test A—Time limit four minutes)

was ranked as number one, the second highest as number two, and so on throughout the list.

The Firm Rank and the Test Rank were then compared. These two series of rankings agreed to an amazing degree.

It is necessary to avoid the suggestion that the tests to be of practical value must agree absolutely with supervisors'

## TEST B

After each word in heavy type there are four words. Underline the one of these four words that is exactly opposite in meaning to the word in heavy type.

Samples 1 and 2 are done correctly.

Sample 1. Light—(sun, dark, day, weight).

Sample 2. Cry—(laugh, play, baby, sad).

Begin with number one and work as fast as you can. If you are not sure, guess.

1. High—(tall, low, sky, deep).
2. Out—(empty, up, in, go).
3. Summer—(spring, winter, hot, swim).
4. White—(black, clean, dress, cotton).
5. Slow—(freight, clumsy, fly, fast).
6. Yes—(agree, no, sure, must).
7. North—(cold, east, hot, south).
8. Above—(sky, hole, below, high).
9. Top—(bottom, sides, box, spin).
10. Good—(bad, rough, boy, nice).
11. Wet—(damp, rain, dry, sand).
12. Up—(high, down, town, stairs).
13. Rich—(gold, man, starve, poor).
14. Front—(back, yard, door, side).
15. Long—(far, short, close, thin).
16. Hot—(fire, ice, cold, stove).
17. East—(north, sun, west, right).
18. Day—(light, hour, dark, night).
19. Big—(large, little, giant, full).
20. Love—(hate, girl, grief, enemy).
21. Buy—(price, sell, hat, cheap).
22. Boy—(school, bad, play, girl).
23. Soft—(hard, brittle, smooth, rubber).
24. Weak—(day, sick, big, strong).
25. First—(foremost, second, last, prise).

Figure 28: Page 2 of Mental Alertness Test. (Test B—Time limit one minute)

ratings. There are at least four fairly obvious reasons why 'the tests and supervisors' ratings should not show *perfect* agreement:

I. Mental alertness is only one of a number of important qualities that make for success. Such other important qualities as personality, ambition, energy, initiative,

# TEST C

In each of the lines in this test, the first two words fit each other in a definite way. You are to draw a line under the one word in heavy type that fits the third word in just the same way that the second word fits the first. Look at Sample 1.

SAMPLE 1. boy is to man as kitten is to (cat, dog, rat, girl).

The word cat is underlined because a cat is a grown up kitten just as a man is a grown up boy. Look at Sample 2.

SAMPLE 2. eye is to see as ear is to (song, hear, blue, bright).

The word hear is underlined because hear fits ear just as see fits eye. We hear with our ears and we see with our eyes.

Begin with number 1 and work as fast as you can without making mistakes.

1. eat	is to bread	as drink	is to (water, thirsty, swallow, taste)	1
2. man	is to home	as bird	is to (fly, nest, tree, sings)	2
3. feathers	is to bird	as fur	is to (soft, warm, bear, brown)	3
4. shoe	is to foot	as hat	is to (coat, straw, head, sun)	4
5. door	is to house	as gate	is to (swings, hinges, yard, latch)	5
6. wash	is to face	as sweep	is to (floor, broom, straw, clean)	6
7. cold	is to ice	as heat	is to (wet, cold, hot, fire)	7
8. penny	is to copper	as dime	is to (quarter, silver, spend, penny)	8
9. food	is to man	as fuel	is to (burn, coal, engine, wood)	9
10. sit	is to chair	as sleep	is to (rest, wake, snore, bed)	10
11. sweet	is to sugar	as sour	is to (unpleasant, bitter, taste, lemon)	11
12. summer	is to spring	as autumn	is to (spring, winter, summer, fall)	12
13. swim	is to water	as fly	is to (air, bird, kite, arrow)	13
14. egg	is to bird	as acorn	is to (grow, fall, oak, hard)	14
15. love	is to friend	as hate	is to (dislike, enemy, sister, admire)	15
16. minute	is to second	as hour	is to (day, second, minute, watch)	16
17. automobile	is to wagon	as motorcycle	is to (ride, speed, bicycle, car)	17
18. pan	is to tin	as table	is to (chair, wood, legs, dishes)	18
19. skin	is to body	as bark	is to (tree, dog, bite, noise)	19
20. Tuesday	is to Monday	as Friday	is to (week, Thursday, luck, Saturday)	20
21. man	is to arm	as tree	is to (shrub, limb, roots, bark)	21
22. father	is to son	as mother	is to (aunt, nephew, daughter, sister)	22
23. shoestring	is to shoe	as button	is to (coat, bone, bell, hook)	23
24. fin	is to fish	as wing	is to (fly, air, bird, sail)	24
25. above	is to below	as top	is to (spin, bottom, surface, side)	25

Figure 29: Page 3 of Mental Alertness Test. (Test C—Time limit 1½ minutes)

special skill or experience and physical conditions have much to do in determining an employee's general value to an organization. The Mental Alertness Tests are not and could not be designed to measure such qualities. They indicate the single quality (out of many qualities) of mental alertness.

## TEST D

Here are some figures built out of cubical blocks. All the blocks are the same size and shape. You are to count the number of blocks used to build the figures shown below. Think how the figure would look from all sides; remember that there are more blocks than the ones you can actually see in the picture.

Count the number of blocks used to build each figure and write your answer in the little square just below.

Look at Sample 1. This is built with two blocks, so 2 is written in the little square.

Look at Sample 2. Eight blocks were used to build this, so 8 is written in the little square.

Work as fast as you can without making mistakes.

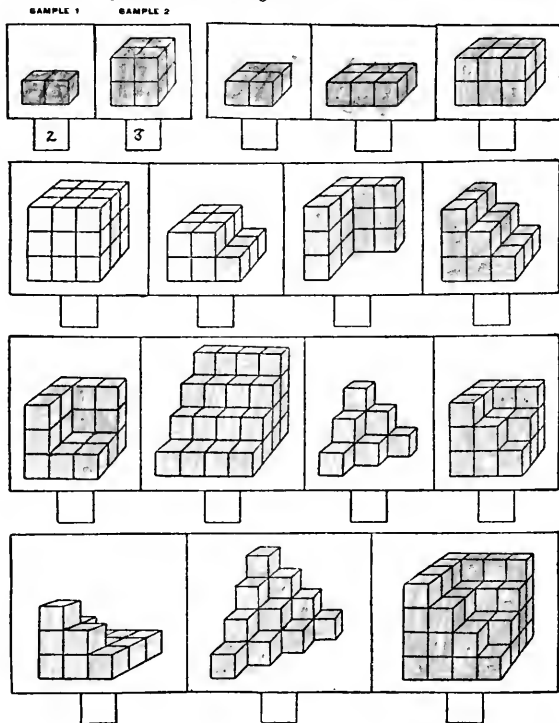


Figure 30: Page 4 of Mental Alertness Test. (Test D—Time limit 2 minutes)

II. A mental alertness rating must not be considered to be an absolute index even of mental alertness. Undoubtedly there is an occasional employee who fails to do himself justice because of attitude, possible ill health, and so forth. Careful studies have shown, however, that serious errors occur very rarely.

# TEST E

On each line of this test there are some letters. The letters on each line can be arranged to spell the name of an animal. Look at Sample 1.

SAMPLE 1. **tra** rat

The letters **tra** when properly arranged spell rat.

You are to write after each group of letters the name of the animal that can be spelled with those letters. Begin with the first. If you come to one you can't do pass on to the next.

Work as fast as you can without making mistakes.

- |                            |       |    |
|----------------------------|-------|----|
| 1. <b>t e a</b>            | _____ | 1  |
| 2. <b>r e d e</b>          | _____ | 2  |
| 3. <b>n i o l</b>          | _____ | 3  |
| 4. <b>i g r e i</b>        | _____ | 4  |
| 5. <b>s n k u k</b>        | _____ | 5  |
| 6. <b>e r b a</b>          | _____ | 6  |
| 7. <b>l f o w</b>          | _____ | 7  |
| 8. <b>b a r z e</b>        | _____ | 8  |
| 9. <b>b n s i o</b>        | _____ | 9  |
| 10. <b>k m y e o n</b>     | _____ | 10 |
| 11. <b>u r t l e t</b>     | _____ | 11 |
| 12. <b>d u o n h</b>       | _____ | 12 |
| 13. <b>h a p l e n t e</b> | _____ | 13 |
| 14. <b>d e l o p r a</b>   | _____ | 14 |
| 15. <b>s e l w a e</b>     | _____ | 15 |
| 16. <b>g o r o a n k a</b> | _____ | 16 |
| 17. <b>y e t e o o</b>     | _____ | 17 |
| 18. <b>k u n m p c h i</b> | _____ | 18 |
| 19. <b>p e a t n o l e</b> | _____ | 19 |
| 20. <b>l q r i u r s e</b> | _____ | 20 |

Figure 31: Page 5 of Mental Alertness Test. (Test E—Time limit 2½ minutes)

III. Many employees who are mentally slow have been able to become fairly proficient in simple jobs because of long experience and practice. Such employees would naturally be ranked higher in "general value" than those who are mentally much superior but are relatively inexperienced in practical office work.

## TEST F

In this test you must think about coins. Here is a sample question to show you what the test is like.

Sample 1. What 3 coins add up to 55 cents?

<input type="checkbox"/>	Halves
<input checked="" type="checkbox"/>	Quarters
<input type="checkbox"/>	Dimes
<input checked="" type="checkbox"/>	Nickels
<input type="checkbox"/>	Cents

The answer is 2 quarters and 1 nickel. Notice that all you have to do is to write the correct numbers in the square before the name of the coins.

Be sure that you select exactly the number of coins asked for in the question and be sure that they add up to the correct amount.

Begin with the first question. If you come to a question you can't answer, go on to the next one. Work as fast as you can without making mistakes.

<p>QUESTION 1</p> <p>What 3 coins add up to 60 cents?</p> <table> <tr><td><input type="checkbox"/></td><td>Halves</td></tr> <tr><td><input type="checkbox"/></td><td>Quarters</td></tr> <tr><td><input type="checkbox"/></td><td>Dimes</td></tr> <tr><td><input type="checkbox"/></td><td>Nickels</td></tr> <tr><td><input type="checkbox"/></td><td>Cents</td></tr> </table>	<input type="checkbox"/>	Halves	<input type="checkbox"/>	Quarters	<input type="checkbox"/>	Dimes	<input type="checkbox"/>	Nickels	<input type="checkbox"/>	Cents	<p>QUESTION 2</p> <p>What 3 coins add up to 35 cents?</p> <table> <tr><td><input type="checkbox"/></td><td>Halves</td></tr> <tr><td><input type="checkbox"/></td><td>Quarters</td></tr> <tr><td><input type="checkbox"/></td><td>Dimes</td></tr> <tr><td><input type="checkbox"/></td><td>Nickels</td></tr> <tr><td><input type="checkbox"/></td><td>Cents</td></tr> </table>	<input type="checkbox"/>	Halves	<input type="checkbox"/>	Quarters	<input type="checkbox"/>	Dimes	<input type="checkbox"/>	Nickels	<input type="checkbox"/>	Cents	<p>QUESTION 3</p> <p>What 4 coins add up to 41 cents?</p> <table> <tr><td><input type="checkbox"/></td><td>Halves</td></tr> <tr><td><input type="checkbox"/></td><td>Quarters</td></tr> <tr><td><input type="checkbox"/></td><td>Dimes</td></tr> <tr><td><input type="checkbox"/></td><td>Nickels</td></tr> <tr><td><input type="checkbox"/></td><td>Cents</td></tr> </table>	<input type="checkbox"/>	Halves	<input type="checkbox"/>	Quarters	<input type="checkbox"/>	Dimes	<input type="checkbox"/>	Nickels	<input type="checkbox"/>	Cents	<p>QUESTION 4</p> <p>What 3 coins add up to 85 cents?</p> <table> <tr><td><input type="checkbox"/></td><td>Halves</td></tr> <tr><td><input type="checkbox"/></td><td>Quarters</td></tr> <tr><td><input type="checkbox"/></td><td>Dimes</td></tr> <tr><td><input type="checkbox"/></td><td>Nickels</td></tr> <tr><td><input type="checkbox"/></td><td>Cents</td></tr> </table>	<input type="checkbox"/>	Halves	<input type="checkbox"/>	Quarters	<input type="checkbox"/>	Dimes	<input type="checkbox"/>	Nickels	<input type="checkbox"/>	Cents
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Figure 32: Page 6 of Mental Alertness Test. (Test F—Time limit 3 minutes)

IV. Supervisors' ratings are not necessarily uniform and constant. In the absence of a uniform "Rating Scale" it is natural that some supervisors would emphasize certain qualities while other supervisors would emphasize other qualities. (See page 200, Chapter XII). Some are unable to compare one worker in "general value" with other work-

ers who are on a different type of job. It is also difficult for supervisors to judge potential or probable value of new employees in their departments.

In view of the above points, one would naturally expect only slight agreement to exist. Any degree of agreement that is found takes on added significance under the circumstances.

A number of groups of office employees were examined in several organizations. After each group examination the immediate superiors were asked to rank their employees whom they knew by intimate contact on the basis of "general value" to the organization. The test blanks were scored and the employees were ranked according to test score from highest to lowest. Then the two rankings were compared to determine whether those who stood high in the tests also stood high according to the superiors' knowledge of their "general value."

#### TYPICAL RESULTS

The results in Department N, Company C, are presented here (See Table 4) because a number of very significant points are illustrated. The department handles all transcribing and addressing work for the organization. The women employees are classified as stenographers, typists, and clerks. There is a relatively high turnover in the department because it operates as a sort of vestibule school. Those who do the best work are transferred to other departments as requisitions for first-class stenographers, typists, clerks, and secretaries are received by the Employment Department.

Table 4 shows a comparison of the test score and rank order in the tests for each employee and the rank in "general value" (average given by the two department supervisors) together with "remarks" made about some of the employees by the supervisors. The rank orders run from 1, which is highest, to 19, the lowest in the group. In case

TABLE 4

COMPARISON OF MENTAL ALERTNESS SCORES AND RANKING IN  
 "GENERAL VALUE" OF WOMEN EMPLOYEES IN  
 DEPARTMENT N, COMPANY C

Em- ployee	Test Score	Rank- ing by Test	Average Rank- ing in "Gen- eral Value"	Remarks by Supervisor
A	67	1	2	An excellent worker
B	63	2	3.5	Knows more than any test would show
C	61	3	5	Invaluable; very willing
D	59	4	6	No comment secured
E	54	5	7	Always on the job
F	52	6	1	Very good
G	50	7.5	14 X*	Does not cooperate, not interested
H	50	7.5	9	No comment secured
I	48	9	3.5	Is bright but has only been to 8th grade
J	47	10	12	Dissatisfied, wants better job
K	46	11	15	Has just come from public school
L	43	12	18	New in department, just from public school
M	41	13	8 X*	Erratic, day-dreams a lot
N	40	14	16.5	Untidy and inaccurate
O	37	15	10	Comment not secured
P	36	16	13	Had H. S. education but her brain is asleep
Q	32	17	11	Poor speller
R	23	18	16.5	Comment not secured
S	15	19	19	Very poor typist

\*A letter X following the supervisor's ranking of any employee on "general value" indicates a disagreement between that ranking and the test results of such an extent as to place the employee above average in "general value" and below average in the tests or vice versa.

of a tie, both receive the same rank. For example, Employees G and H both scored 50 points and are tied for seventh and eighth places—hence they both are given the rank of 7.5.

The agreement between test results and supervisors' judgments of "general value" is close. It is interesting to note that Employee "S" is ranked as poorest in the tests and poorest in "general value." Employee "L"—apparently



rated too high by the tests, judging by the fact that the supervisors ranked her as low as 18—is new and has not had time to win her way to average accomplishment in the department. Employee G is rated lower in “general value” than the test score would indicate, largely because she does not seem to be interested in her work and fails to cooperate with her supervisors.

The results for Department M, Company B, are presented in Table 5. They indicate a closer relationship between test results and supervisors’ ratings than was found in the department covered in Table 4.

TABLE 5

COMPARISON OF MENTAL ALERTNESS SCORES AND RANKING IN  
“GENERAL VALUE” OF WOMEN OFFICE EMPLOYEES IN  
DEPARTMENT M, COMPANY B.

Employee	Test Score	Ranking by Test	Average Ranking by Supervisors
A	49	1	1
B	48	2	6
C	45	3	3
D	44.5	4	4
E	42.5	5	5
F	40	6	2
G	38.5	7.5	7
H	38.5	7.5	8
I	36.5	9	11
J	32.5	10	14
K	32	11	13
L	30	12	9
M	28	13	12
N	24	14	10

In Table 5 we find that every employee who was above average in the tests is considered by the department supervisors to be above average in “general value.” Such close agreement, of course, is not always to be expected.

The following are typical of the statements made by department heads when they are later given the test ratings of their own employees: “My best people are those who stand

above average in the tests." "It is easier to teach those who stand high in the tests." "The general efficiency of my department would be increased if tests were given more weight in the hiring of new employees."

No definite conclusion would be warranted if based on the study of any single office. But since the results secured in all offices investigated agree, we are justified in the conclusion that there is a high degree of correlation between the score secured in the tests and the efficiency demonstrated in the work of the office. It is a *general rule*—not an absolute rule—that in the judgment of the office manager those who stand high in the tests stand high in their office tasks; but that those who stand low in the tests are inefficient in the office.

Some office positions require a much higher degree of mental alertness than other positions in the same office. Secretarial positions require a high degree of mental alertness, but typists "get by" successfully with a low degree. In routine positions, employees with low mental alertness but long years of experience are more desired than employees with lesser experience and more mental alertness. The least defective inmates of a feeble-minded asylum could perform most of the tasks performed by most people in most positions even in our complex civilization. These inmates cannot pass Mental Alertness Tests, but they are taught to perform practically all the work of the farm and of the household. The mental alertness of the average college student at Northwestern University is higher than that possessed by 90% of the men of the United States Army in the World War. Certainly less than 20% of the soldiers possessed the mental alertness necessary for success in college. However, almost 100% of them possessed intelligence sufficient for effective service in some honorable occupation.

There is no agreement between the Firm Rank and the Test Rank in those positions in which all the employees possess as high a degree of mental alertness as is needed for the successful performance of the task. There is a high

agreement in those positions in which a high degree of mental alertness is needed, but in which the employees differ greatly in their mental alertness, and particularly if many of them possess less mental alertness than is needed for the most successful performance of certain of the common tasks. A forward step will be taken in personnel every time we discover the minimum of mental alertness essential for even the mediocre performance of the duties of any particular job (the critical score) and the maximum mental alertness that can be profitably utilized on that job (the preferred score).

TABLE 6  
AVERAGE SCORE OF TYPICAL GROUPS

Groups	Average Score
Sales force, employed to assist in holiday rush (women)....	25
Sales force, department store (women) .....	27
Students, commercial business college (women) .....	28
Sales force, employed to assist in holiday rush (men) .....	29
Office boys .....	31
Sales force, department store (men) .....	33
Machine operators (men) .....	33
Job foremen .....	38
All office employees (women) .....	40
Foremen .....	41
Nurses .....	42
Rotary Club members .....	46
Executives of progressive firm .....	51
Supervisors (manufacturing plant) .....	52
Sales executives .....	54
Students (College of arts and sciences) .....	54
Students (Medical school) .....	56
Engineering students .....	57
College presidents (Small colleges) .....	58
Students (Succeeding in examinations for internship) .....	60

In the case of a few positions either with one or with several firms the critical score has been determined. The average score for all the employees in a particular job has also been secured. The preferred score has been sought in

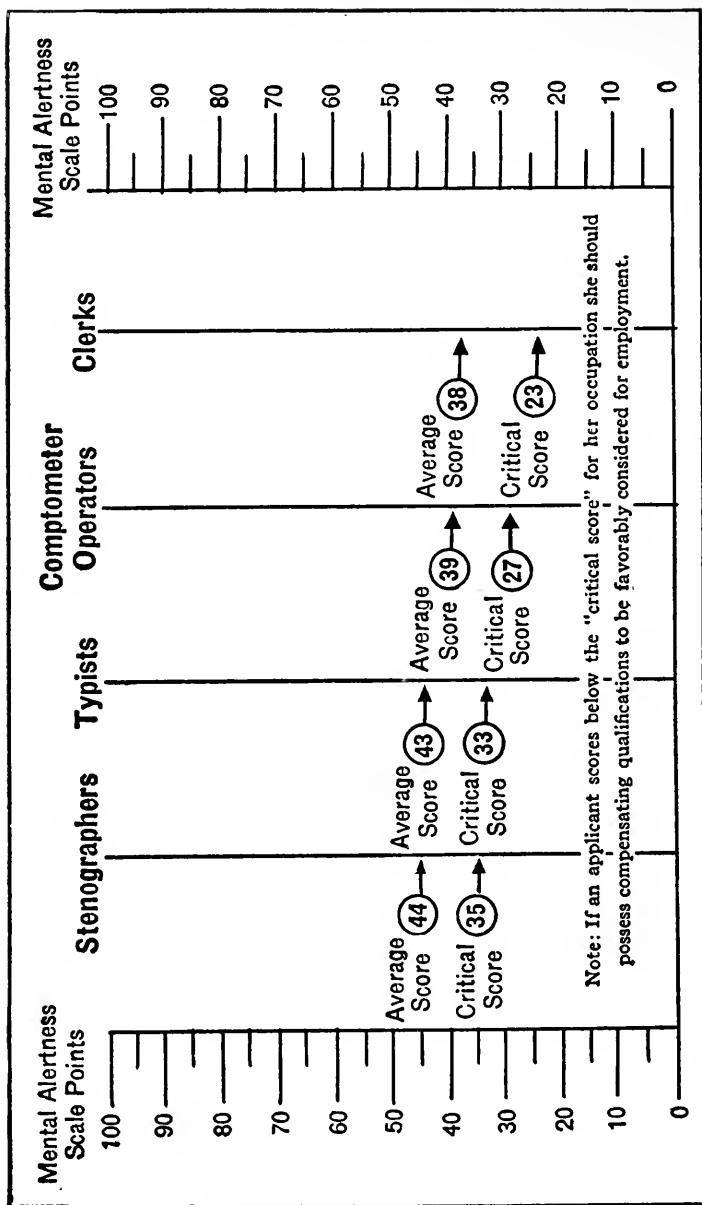


Figure 33: Occupational Standards on Mental Alertness Test (Series I) for women applicants and women employees in a large tire manufacturing company

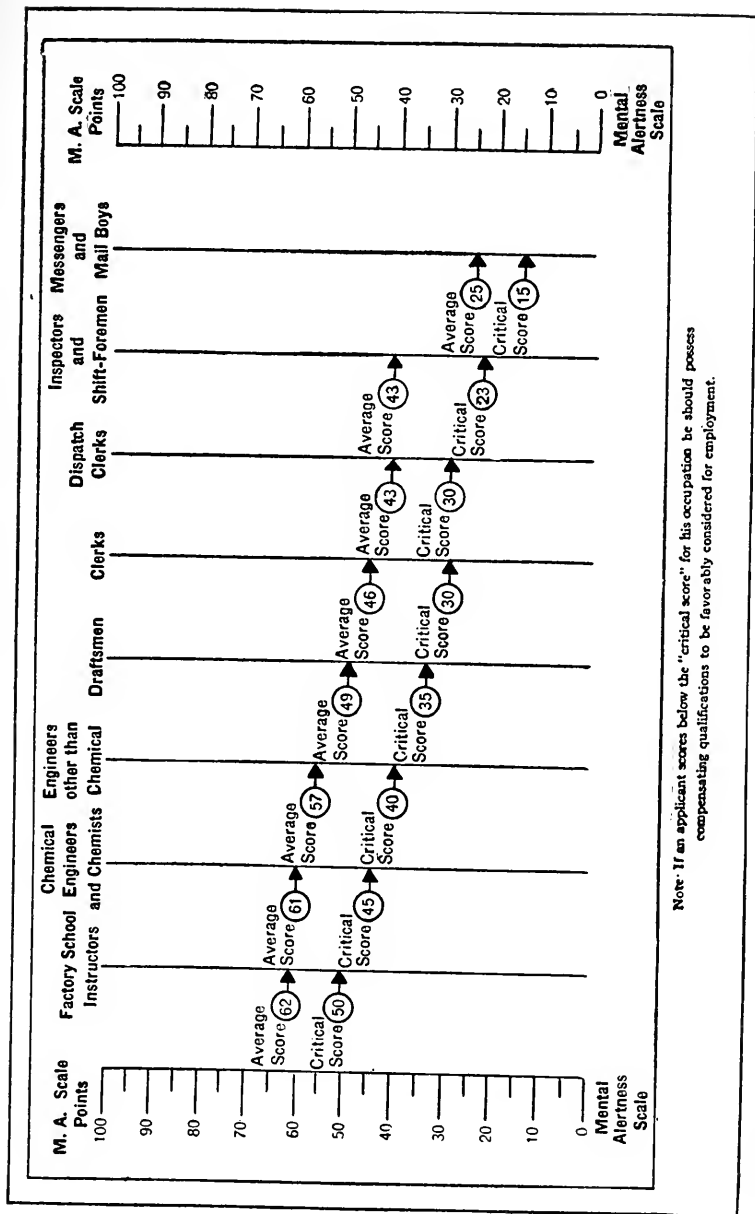


Figure 34: Occupational Standards on Mental Alertness Test (Series I) for male applicants and male employees in a large tire manufacturing company

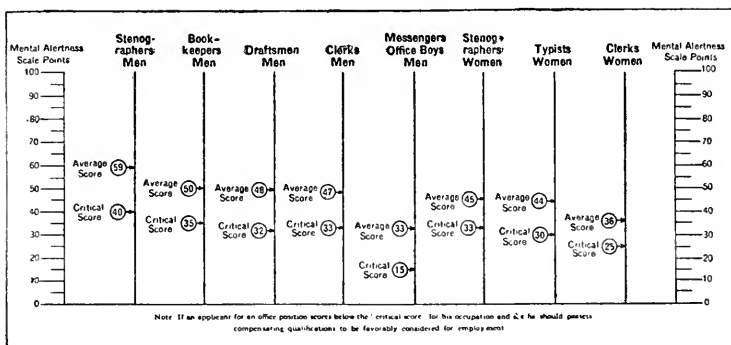


Figure 35: Mental Alertness Standards for various Occupational Groups (Test Series I)

some instances, but the results are not sufficiently certain to justify publication.

Some average scores of typical groups are presented in Table 6. For the sake of convenience certain business firms have reduced the findings secured from their own employees to simple charts as shown in Figures 33, 34 and 35.

The so-called "average score" is the actual average for the company, and the "critical score" is the score below which almost no one succeeds in that particular occupation.

In most of the items listed in Table 6 a positive correlation has been discovered between the Firm Rank and the Mental Alertness Rank. In most of the items there is reason to believe that the "desirable score" is distinctly above the average score.

#### COMPARISON OF MENTAL ALERTNESS SCORES OF MEN AND WOMEN OFFICE EMPLOYEES

Various opinions have been expressed concerning the relative mental alertness of men and women. A mass of experimental evidence has been accumulated by psychologists that seems to indicate that in general there is little, if any, sex difference in mental alertness.

The above opinions and evidence have no bearing on the specific question concerning the mental alertness scores of men and women office employees. There may be and probably are a number of selective factors operating to bring about a real difference in the mental alertness of men and women office employees. Men, on the average, make higher mental alertness scores than do women in the same occupation in typical offices. That is, men stenographers score higher than women stenographers. Men clerks score higher than women clerks, and so forth.

It is not surprising that this is the case. In most offices we find a considerable number of men securing office positions with the sole ambition of winning promotion to the higher executive positions. Such men, without question, are above average in mental alertness.

We also find persons in minor executive positions—even though classified as clerks, stenographers, and so forth—who are no doubt above the general run of office employees in mental alertness.

The data on this topic summarized in Table 6 and in Figures 33, 34 and 35, make clear the necessity of judging men office employees by standards derived from testing men and similarly judging women office employees by standards derived from testing women.

#### SIGNIFICANCE OF RELATION OF MENTAL ALERTNESS SCORES OF APPLICANTS TO MENTAL ALERTNESS SCORES OF EMPLOYEES

Modern principles of personnel management stress not only the need for careful scientific selection of employees, but also the need for broad policies of management that will insure the retention and development of employee after they have been selected. To determine the effectiveness of selective methods and the success of company policies in retaining those selected, it is necessary to make the most careful studies both of applicants and employees.

Such studies help the management to know what changes are taking place from time to time in the source of labor supply; what types of employees are being selected; what types of employees are being retained in the organization, and what types are leaving. If the source of supply brings mediocre applicants to the employment office for positions requiring high-grade employees, then steps should be taken to develop a more adequate source of supply. If the selective methods are picking out an undue proportion of mediocre applicants for occupations where high-grade employees are desired, then improvement in the methods of selection is necessary. Or if the selective methods are picking out high-grade applicants for occupations where mediocre employees are the more desirable, then improvement in the methods of selection is also necessary. If high-grade employees tend to leave shortly after employment in occupations where it is desirable that high-grade employees be retained, then a change in company policies affecting retention needs to be made. Or if mediocre employees tend to leave in occupations where it is desirable that such employees be retained, it is also necessary to change the company's policies affecting retention.

In view of the complex factors involved in any personnel situation, it is necessary that continuous personnel research be carried on. On the basis of the facts disclosed by such research, the management will then be able to establish a more satisfactory personnel policy. The purposes of research we shall discuss more fully in Chapter XXVII.

We present here the results of an incomplete study of one phase of such an analysis. The results are the outcome of a study carried on in two companies of the mental alertness scores of applicants and employees.

All women applicants for clerical positions in Company A were given Mental Alertness Test Series I and these scores were then compared with the scores made by the women clerical employees in three office departments. In Company D all women applicants for stenographic and typist posi-



tions were given the Mental Alertness Tests and these scores were then compared with the scores made by the women stenographers and typists in the offices. These comparisons are presented in the chart in Figure 36. On this chart each dot represents one applicant or one employee. In the case of Company D seven applicants were rejected and are indicated on the chart by circles.

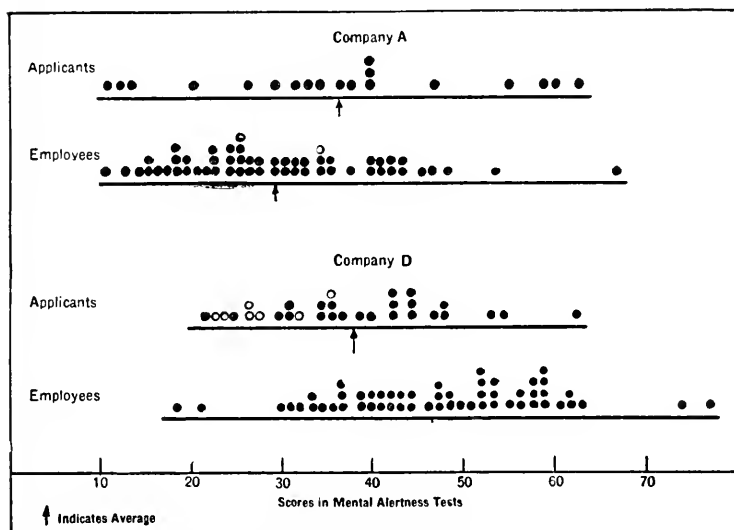


Figure 36: Mental Alertness Test for women office employees. (Comparison of scores of applicants and employees in two companies)

The mental alertness level of the applicants in both companies appears to be approximately the same. If so, the sources of supply for the office positions in both companies are comparable in their adequacy. Although the sources of supply seem to be about the same, yet there is a striking difference between the women office employees in Company A as compared with those in Company D.

It is obviously impossible to interpret properly the facts brought out on the chart without knowing whether the source of supply in both companies has remained constant

for a considerable time, whether both companies have used the same careful methods of selection for a considerable time, and whether the wage policies of both companies have been similar or quite different in the past. Such knowledge will be available to these companies within the near future because of the continuous study they are conducting of their applicants and employees.

Already facts are accumulating that throw some light on the situation within these companies. For example, there is some evidence that Company A attempts to select high-grade applicants for office positions but that this type of applicant if employed does not remain long in the company. The data, though meagre, indicate that they leave for better opportunities and higher wages elsewhere. Such a tendency, if confirmed by further study, could very easily be changed by a readjustment of the wage policy and a continuation of the policy of selecting high-grade employees.

#### SIGNIFICANCE OF THE MENTAL ALERTNESS SCORES OF THE WOMEN OFFICE EMPLOYEES IN FOUR COMPANIES

In the development of its personnel program it is important for a company to take into consideration not only the work done by a particular group of employees but also the effect of company policies with respect to general working conditions (including wages, hours, and so forth), upon the employees—which effect determines to a marked degree the kind of employee who remains in the service. A company's labor policy must conform to the nature of the work to be done by the employees if the stability of the work force is to be maintained.

If high-grade employees are selected where requirements demand only mediocre workers, study will show that the instability is actually increased. Those above the level of mediocrity will leave for better opportunities elsewhere, assuming that the working conditions, wages, and so forth, are adjusted to retain only mediocre workers.

If mediocre workers are selected where requirements demand only high-grade employees, study will show similarly that instability is increased—those of only mediocre ability will fail to make good and leave the organization because of discouragement or failure to produce. This is assuming that the wages, hours, and so forth, are such as to retain high-grade workers. Otherwise the reverse tendency will be evident—the high-grade employees will leave and the mediocre workers will tend to hang on with a resulting increase in turnover and development of friction between department heads and the personnel department.

If mediocre workers are selected where the requirements demand mediocre workers and high-grade workers are selected where the requirements demand high-grade workers, turnover will be kept within reasonable limits provided that wages, hours, and other conditions of work conform to the nature of the particular work involved. If the wages and hours do not conform, then the excellent selective methods in operation will be defeated and turnover will be increased.

It is evident that thorough statistical research is necessary if a company is to check up the success of its personnel program in relation to company policies. Standards must be established by which the caliber of the employees at any particular time can be measured. Considerable benefit is derived from a study of the turnover as affected by a variety of factors bearing upon the value of employees as we shall explain in Chapter XXVI. The Mental Alertness Test levels, the trade test ratings, length of service, educational attainments, and so forth, of the working force should be determined and compared with the figures for the same force of previous years and with those leaving the force from time to time. Comparisons of this nature are still more effective if extended to include similar groups of workers in different companies.

In this connection it is interesting to note that the mental

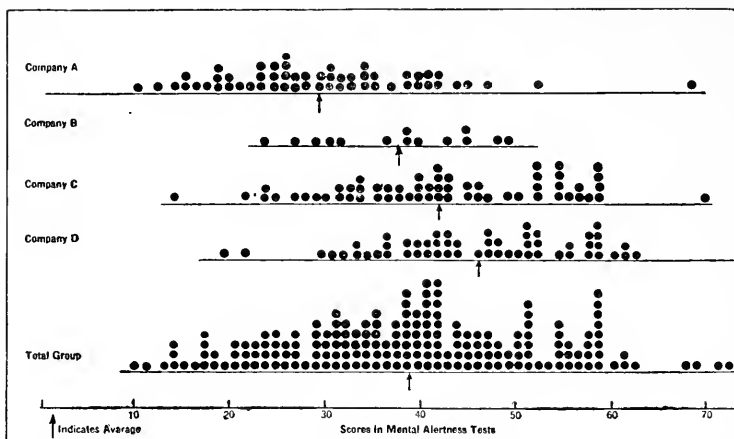


Figure 37: Mental Alertness Test for women office employees. (Distribution of scores of companies)

alertness levels of women office employees in four companies differ quite widely.

The chart in Figure 37 brings out these differences. The distribution of the scores for the women office employees in the four companies designated by the letters A, B, C, and D is shown. Each dot represents an individual employee. The average score for the women office employees in Company A is only 30; for Company D it is 46. The scores for Companies B and C range between those for A and D.

There is some evidence at hand, that the high score employees in Company A tend to leave shortly after employment and that the reverse is true in Company D.

Such differences in the mental alertness level of similar office employees in different companies will become more clearly understood as intensive studies of applicants, employees and exits yield data of increasing significance. Such basic research continuously carried on will make possible a more complete coordination of company wage policies and personnel methods and aims in selection, transfer, promotion, and development of employees. This is discussed more fully in Chapter XXVII.

## MENTAL ALERTNESS OF MESSENGER BOYS

Messenger and office boys are of particular interest because they are so definitely a source of supply for future executive material. Messenger work offers a splendid chance to learn in an intimate way the methods and policies of a company. This is an educational opportunity that should be made available only to those who are capable of taking advantage of it.

The companies whose boys are here discussed all consider that messengers and office boys are a natural and logical source of supply for higher positions. These companies desire to improve the quality of this occupational group as far as possible.

Test results among office employees show that those who are most successful in their work usually have the highest degree of mental alertness. This is especially true if the work is at all varied or if the position requires initiative or judgment. If messengers and office boys are to be considered a source of supply for these positions, it is evident that mental alertness is one quality to be sought for when the boys are hired.

It is important that messengers and office boys have a high degree of mental alertness not only in order to build up a source of supply for higher grade clerks and executives. We have direct evidence from Company D that mental alertness affects the success of such boys in their immediate job. We find in this company that boys who have been discharged scored on the average only 22 points in the Mental Alertness Test. The boys who were promoted scored on the average 38.6 points.

These two facts constitute sufficient evidence that a high degree of mental alertness is a quality to be desired for messengers and office boys. It is, therefore, of practical interest to discover:

- a. Whether or not there is a relation between the score

in the Mental Alertness Test and labor turnover. That is, whether or not the boys who are most valuable are also most stable.

b. How any one company compares with other companies with respect to the mental alertness of its messenger boys.

This study indicates that the least turnover among messenger boys is found for those boys who make low scores and for those who make the highest scores in the tests. Resignations are most frequent among those who score between 30 and 55 points in the Mental Alertness Test. These results are shown graphically in Figure 38. The high stability among those who score over 55 points indicates that messenger work is not distasteful to bright boys. Since this is the case, there is a real opportunity for a company to develop these boys by affording adequate educational facilities designed to increase their knowledge of the organization and its product, and at the same time to train them for better positions.

The greater instability in the group of boys scoring between 30 and 55 points deserves attention, since messengers of this degree of mental alertness are also of real value for messenger work and ultimately for higher clerical positions. The need for special follow-up contact with those scoring

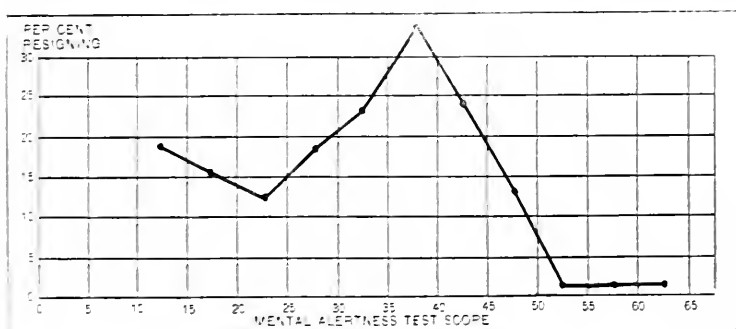


Figure 38: Chart showing Stability in relation to Mental Alertness Test Score. (Messenger boys in Company D)

between 30 and 55 points is indicated, since there seems to be a tendency toward instability in this group.

Relatively few resignations are found among boys who make the lowest scores in the Mental Alertness Test. In other words, a high degree of stability is found in this lower range of mental alertness. If the messenger boy group is looked upon as a source of supply for various office positions, then at least some of the boys in the group who obtain low scores should not have been employed.

The probability that there are misplacements, taken in conjunction with the tendency toward stability, means that careful consideration should be given to each individual case and low-score boys who have no other compensating abilities would be benefitted by transfer to factory jobs that do not require a high degree of mental alertness for successful performance.

Attention should be called to the fact that this curve is based on results from only one company. It is impossible to state whether a parallel situation will be found in other companies. However, these results show the type of definite information that comes from such a study and suggests the benefit which can be expected by any company which pursues this kind of study of its boys.

#### COMPARATIVE DATA FROM THREE COMPANIES

The distribution of the Mental Alertness Test scores of the messenger boys in the three companies is shown in Figure 39. Each dot on the chart represents the score made by a messenger boy.

The average score of the boys in Company F is 36 points, in Company E, 32 points, and in Company D, 26 points. The differences between these three companies with respect to the mental alertness of their messenger and office boys is clearly a real difference. Company D has comparatively few boys who make high scores as compared with Company F. Company E, although it has a fair representation of

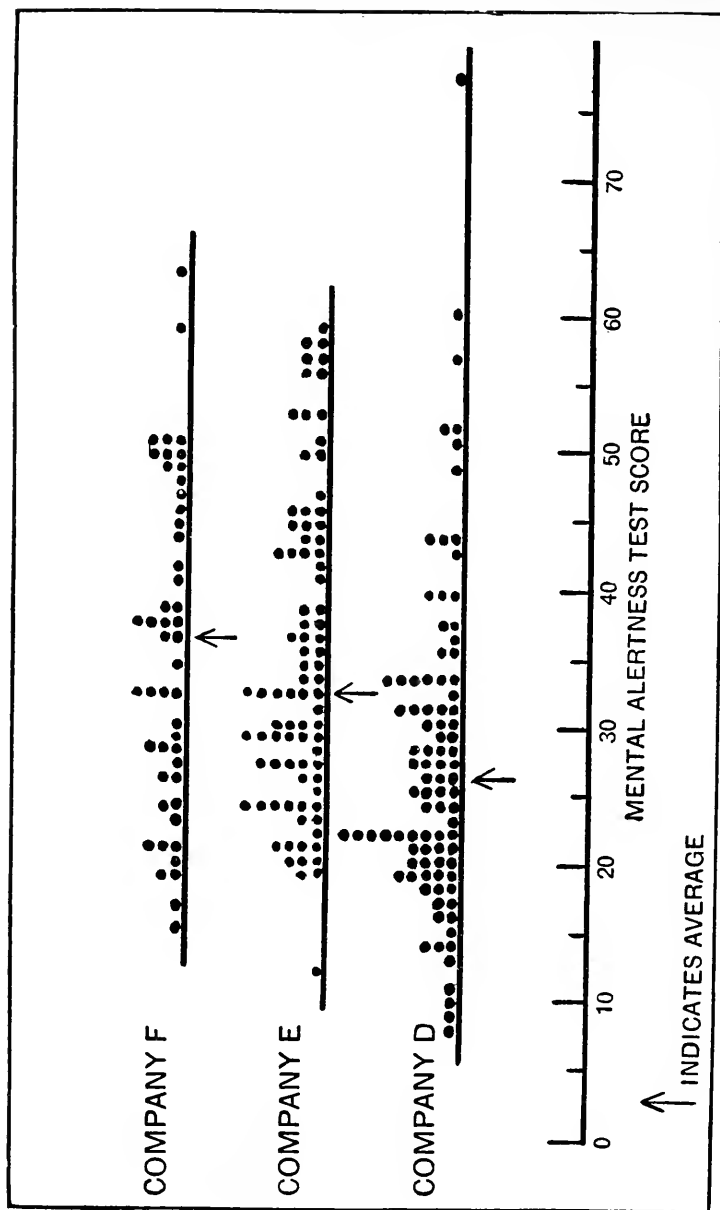


Figure 39: Graph showing Mental Alertness Test Scores of office boys in three companies



boys making higher scores, nevertheless has a much larger percentage of low-score boys. It is clear that the boys in Company F as a group constitute a more valuable source of future executive material than do the boys in Company D.

For Company E the need of better selective methods is indicated. For Company D, not only are better selective methods required, but there is need for the development of a better source of supply.

#### AGE COMPARISONS

The mental alertness differences shown in the preceding pages are not due to differences in the ages of the boys in the three companies. In fact the boys in Company F are on the average six months younger than the boys in Company D.

It is also true that age bears but little relation to the Mental Alertness Test scores made by the boys of any individual company. That is, the older boys are almost as likely to make low scores as are the younger boys, and the younger boys are almost as likely to make high scores as are the older boys. This evidence indicates that no serious error will come from not making allowance for age in the testing of messenger boys who are more than 14 years old.

Among the boys who had not reached the seventh or eighth grade several were found who made a relatively high score in the Mental Alertness Test, a score high enough to justify their selection regardless of their limited educational advantages.

#### GENERAL DISTRIBUTION CURVE OF MESSENGER BOYS

The distribution of the Mental Alertness scores of 242 messenger boys as compared with 311 men clerks is shown in Figure 40.

The shape of the curve for messengers is what is technically termed "skew." The mass of the curve seems placed toward the left and it tapers out more to the right, that is,

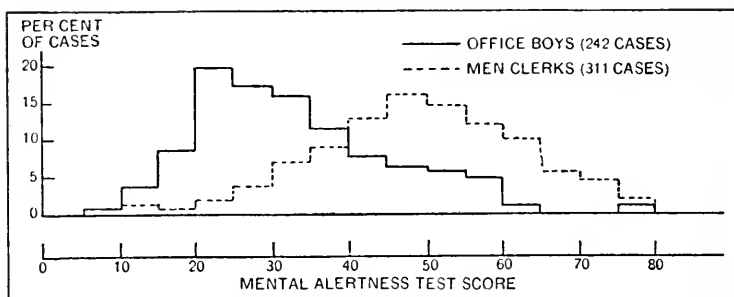


Figure 40: Graph showing Mental Alertness Test Scores of office boys

toward the higher end of the scale. This means that in mental alertness the mass of the messenger boys score in the low ranges of the mental alertness scale, while high-score boys are relatively less numerous. In other words, the chances are that the ordinary boy applying for messenger work will be of inferior mental alertness and that as a result of this, the natural tendency over a period of time will be toward the deterioration of the messenger boy force. The need for careful selective methods to counteract this natural tendency is clearly shown. The shape of the distribution curve of messengers also indicates with great definiteness the need for the continuous use of every means of developing an adequate source of supply of high-grade boys through schools and homes.

#### FOREMEN'S TRAINING AND MENTAL ALERTNESS

At the completion of an Executive's Course in Factory Management and Modern Production Methods, Mental Alertness Tests were given to its 122 members. Comparisons were then made between the mark which each individual made in the final examinations in the course and his score in the Mental Alertness Tests. Definite agreement between the examination mark and test score was found. The extent of this agreement can be judged roughly from the following figures.

The foremen who passed the final examination with a

mark of 90 or better averaged 62 in the Mental Alertness Tests.

The foremen who made a mark in the final examination of 60 or less averaged 38 in Mental Alertness Test scores.

The same facts can be shown in another way.

The foremen who made a score of 60 or better in the Mental Alertness Tests averaged 81 in the final examination for the course.

The foremen who made a score of less than 40 in the Mental Alertness Tests averaged 63 in their final examinations.

These facts agree with those which show the usefulness of Mental Alertness Tests in classifying students in a factory school according to their ability to learn. It was found that the scores made by students in a factory school made it possible to classify them into three groups with great advantage: those who could learn easily and quickly, those who learned more slowly and with greater difficulty, those who learned with great difficulty and who took a long time to accomplish what the others accomplished more quickly. This is explained fully in Chapter XXI on Training.

The results obtained in this investigation of the scores made by the men in the foremen's training course show that Mental Alertness Tests can be used for the classification of foremen into groups relatively homogeneous in their ability to learn. Such a classification for training purposes would effect great improvement in the character of discussion and in the amount of material that could be covered in any definite time.

An important secondary result of the use of Mental Alertness Tests in conjunction with a foremen's training program would come through the detection of cases where a special appeal is desirable. Examples illustrative of this occurred in the present group studied. One foreman who scored 73 in the Mental Alertness Tests, a very high score, made 24% in his final examination; another foreman who scored 81 in the tests made a mark of only 59% in his examination. If such cases, where men of high ability are doing poor

work in the foremen's course, can be detected soon enough, the use of proper methods of individual appeal will help correct undesirable situations.

No difficulty was experienced in securing the cooperation of the foremen who were tested. The Educational Director of the company in which the experiment was conducted gives some practical suggestions as to the administration of such testing.

"Our experience here . . . with the Mental Alertness Test as applied to our foremen's classes has been very satisfactory. The application of this test during a regular class session had a very stimulating effect. This was due to the plan of having the foremen feel that they were making a personal experiment as to the value of alertness as a check on classroom progress.

"I think it most necessary that men in a class should not feel that Mental Alertness Tests are to be used as a means of grading them but rather as only one of the many ways of analyzing properly. . . .

"The spirit that our foremen showed was one of being anxious to take the test to see what it was all about. . . .

. . . . I think the use of such tests as Mental Alertness on such men as foremen without proper introduction as to the how or wherefore, would invariably meet with resentment and discouraging results. It would seem most necessary that each man taking same in a class should look upon it as an experiment and, as such, he is anxious to take part and find out what its real value is. . . . In the case of Mental Alertness Tests, I think it is only fair to explain that the material covered by the test is of such nature that every school boy could grade high, but the speed of answering the questions correctly is the real gage of the alertness involved. This does much to have every man anxious to take part in same."

*References to this chapter will be found at the end of Chapter XV, page 281.*

## XV

### MENTAL ALERTNESS TESTS (*Continued*)

Testing the tests by later vocational accomplishment. An experiment in the selection of salesmen. Report of the follow-up of women clerks who had been given the Mental Alertness Tests at time of employment. An experiment with shop operators. An experiment with office boys. Intelligence tests. An experiment with junior experts. An experiment with minor executives. An experiment with engineers.

PSYCHOLOGY is the study of human behavior. The value of such a study is that it assists in controlling human behavior. Mental Alertness Tests are convenient tools used in studying human behavior. The results secured by Mental Alertness Tests should assist in controlling human behavior whether that control be in terms of more accurate selection or more effective direction.

If mental alertness is an important factor in attaining success in any occupation, then those applicants who are selected because they stand high in Mental Alertness Tests should succeed better than those applicants who stand less high in the tests. If the young employees in that vocation were given Mental Alertness Tests, those who stood high in the tests might be expected to succeed better in later years than the employees who passed the tests less successfully.

During the last few years much evidence has been amassed that bears directly on these assumptions.

One of the largest American sales organizations recently made experiments with Mental Alertness Tests. Ten applicants at the time of employment were given a series of Mental Alertness Tests. The salesman who ranked highest in these tests is called A, the salesman ranking second highest is called B, and so on, the one standing at the bottom being called J.

TABLE 7  
AN EXPERIMENT IN THE SELECTION OF SALESMEN

Salesman	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
A .....	7	4	9	8						
B .....	9	8	4	3	1	1	1	1	1	1
C .....	2	5	2.5	5	3	2	2	2	2	2
D .....	6	3	8	7						
E .....	10	10	10	9	7	7	7			
F .....	5	2	2.5	6	6	4.5	6	5	5	3
G .....	3	6	5	1	2	3	5			
H .....	8	9	6	2	4	4.5	3	4	4	4
I .....	4	7	7							
J .....	1	1	1	4	5	6	4	3	3	5

After a few months of apprenticeship and instructional work, these ten young salesmen were put to work, and all, presumably, were given an equal opportunity for success. As shown in Table 7, salesman J surpassed all his fellow salesmen in the month of September. Salesman E was at the bottom of the list, ranking number 10. These two salesmen held these same positions also for October and November. As shown in the table, there was rapid shifting from month to month among the salesmen. E was the only salesman that remained in the same position for more than six months. He was at the bottom of the list from September to March. By the following June salesman B was at the top, C was second, F was third, H was fourth, and J was fifth; the other five had dropped out. The rank order of the five surviving salesmen was exactly in the order they were ranked in the tests twelve months earlier.

If we could judge the prognostic value of Mental Alertness Tests by the standing of these five salesmen in June, we would state that we could tell in advance exactly how a salesman would rank in later selling if we knew how he ranked in comparison with his fellow salesmen in Mental Alertness Tests. Such a conclusion would be founded on inadequate data, and would be wholly false. In this experiment the cases were too few, a period of ten months is too

short a time to be conclusive, and the method employed by the company in ranking the sales efficiency of the men was not perfect. This experiment should be thought of as interesting and suggestive, but as having no scientific value. As a matter of fact, the correlation found in June was not verified by later experiments conducted by the same company on different groups of salesmen.

REPORT OF THE FOLLOW-UP OF WOMEN CLERKS WHO HAD  
BEEN GIVEN THE MENTAL ALERTNESS TESTS AT  
TIME OF EMPLOYMENT

Three months after the employment of some 132 accepted clerical applicants, (women) ratings were secured from department heads indicating the "general value" of each of these new employees. These data were then checked against the Mental Alertness Test scores; the results are shown in Figures 41 and 42.

Figure 41 shows graphically the Mental Alertness Test scores of women clerks classified by their supervisors according to their "general value." Each dot on the chart represents an individual clerk. This chart shows that there is a high positive correlation between test scores and "general value." Those who rate high in "general value" make high scores in the tests. Those who rate low in "general value" make low scores in the tests.

Figures 41 and 42 bring out quite clearly the greater general value of the high-score clerks. The results show that 86% of the "A" rating clerks score above the average of women clerks and that 69% of the "B" rating clerks score above average. Only 14% of the "E" rating clerks score above average and only 28% of the "D" rating clerks score above average.

The value of Mental Alertness Tests for predicting at the time of employment the probable future value of accepted applicants for clerical work in this company was definitely indicated by these tests. Later experiments verified the results.

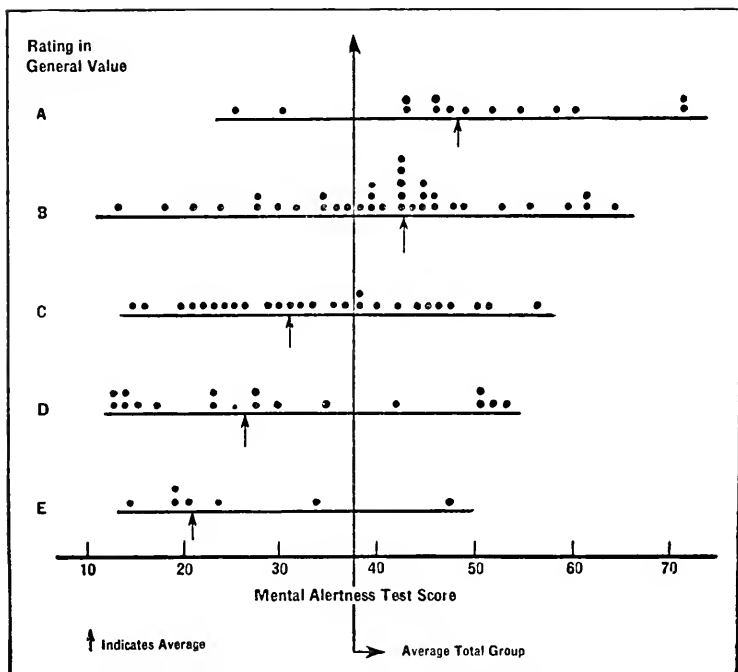


Figure 41: Diagram showing Mental Alertness Test Scores of women clerks classified according to final rating in general value

#### AN EXPERIMENT WITH SHOP OPERATORS

For testing illiterates or those who have difficulty with the English language, Series I, as shown in the preceding chapter, is not applicable. To meet this need a new series of tests, called Series II,<sup>1</sup> has been devised but has not been in general use. It has been used, however, and found successful in some instances.

In the quarterly publication of the American Statistical Association for March, 1923, there appeared an article under the title "Experiment and Statistics in the Selection of Em-

<sup>1</sup>C. H. Stoelting & Co., of Chicago, are exclusive agents for these tests.



ployees." This article described results secured from the use of Series II.

Out of several hundred who took the test, 290 cases were taken at random and were investigated to find out whether ability as shown in the test had any relation to productivity at the machines. This productivity was measured with reference to the

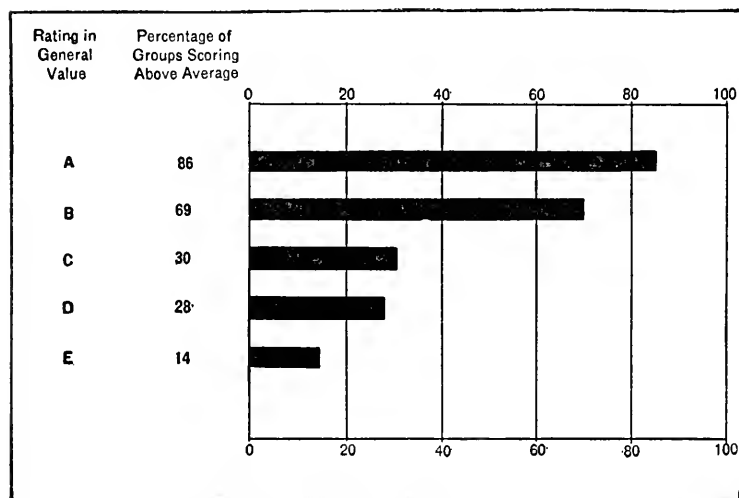


Figure 42: Diagram showing percentage of each group of women clerks classified according to final rating in general value who score above average in the Mental Alertness Test

standard as set by time study and computed in percentages. Four weeks was taken as a productive period and an average made of the operative's work per hour for the whole period. For example: If the standard set for a particular operation had been 60 units an hour and for the past four weeks an operator had averaged 45 pieces an hour, the capacity would have been rated 75%. Had the average been 75 pieces, it would have been rated at 125%. The cases selected had passed through the learning period and were working at what was assumed to be their normal rate. It was, we thought, a fair sample of the operator's work.

As is apparent from observing the correlation table (Figure 43) there is a distinct tendency of association between mental grades and productivity at the machines. The coefficient was:  $r=.51$ ,

		PER CENT OF STANDARD REACHED																									
		50-	55-	60-	65-	70-	75-	80-	85-	90-	95-	100-	105-	110-	115-	120-	125-	130-	135-	140-	145-	150-	155-	160-	165-		
POINTS	60-64																1	1		1		1			4		
	55-59							1	2			4	3	1	3			1	1					1	17		
	50-54			1		2	3	3	4	5	3	5	3	2	2		2	2		1	2	2		1	3	46	
	45-49	1	2	4	3	5	6	6	4	5	7	4	2	2			1			1		1		1	58		
ON	40-44	1	4	4	11	5	3	4	7	5	5	3	1		3	1				1		1		1	58		
MENTAL	35-39	2	2	4	4	2	4	3	8	9	1	6	1	2	1	1									49		
TEST	30-34	1	2	2	3	4	1	6	6	1		4	1	1											33		
	25-29	1	2	1	4		1	2	1	1							1								14		
	20-24	2		2	1	1	1	1																	7		
	15-19			1			1																		2		
	10-14	4	10	16	22	23	21	25	29	29	15	31	15	9	8	4	4	6	1	4	2	5	1	2	4		

Mental Test—Mean = 42.2

$r = 0.51$

Per Cent of Standard Attained—Mean = 92.2

P.E. = .0293

with a probable error of 0.029. It was possible with the test to make 66 points, and the question remained as to what amount of success was necessary to make an applicant worth training in the school as a machine operator. As can be seen from the table, the higher the standard required on the test, the greater number of average operators will be lost at the same time that the lower ones are eliminated. It was decided that the minimum requirement for passing should be 35 points. If, then, we had selected a fair sample, and the standard were set at 35, 48 operators who made below the average of the shop would be eliminated to every 7 who might be expected to make somewhat above the average—surely a great saving in expense of training. It is also a saving for the operator who is under capacity and who by continually failing to reach standard becomes discouraged and dissatisfied. We should have lost but one really good machine operator by this elimination process.

The management feels that it is its duty to take even many of those who failed to reach 35 points. But these operators are placed in positions which do not require the same intelligence and alertness that are required on the regular operations. Incidentally, it is apparent that this group of workers, without qualifications as to their ability, were making on the average 92% of the standards set for the piece-workers. This would seem to show that the standards had been fairly set; and wherever this standard is set, such a gage is a definite and comparable method of measurement and is far more reliable and accurate than personal judgment or any other means of rating productive capacity when applied to machine operation.

In conclusion it should be said that although the mental test showed a fairly high relationship with the operator's performance at a machine, it was by no means complete or constant. There are undoubtedly a large number of factors that enter into the making of a skilled operator and insuring from that operator a steady flow of production. The above analysis tends to show that a definite minimum amount of intelligence or alertness is necessary. Beyond this the operator may still drag behind or fail, and one of the important causes, we are convinced, lies in the amount of incentive the operator brings to the work. To give an example, we have found that almost without exception if a girl is required by her parents to turn over her complete earnings she does not work nearly so well as when an agreement is made with her parents that she be permitted to have for herself all above a certain stipulated amount. The emotional background is equally important; but to try to describe all the rami-

fications of this factor and its attendant social and cultural aspects would be far outside this study.

In summary, therefore, we feel convinced of the following points regarding the employment methods in the Clothcraft Shops:

That the use of mental tests, although only a partial measurement, is the quickest, most accurate and economical method of prophesying future skill at machines and of placing operators at types of work most suited to their capacity.

#### AN EXPERIMENT WITH OFFICE BOYS

The following is a reproduction of a report made by the head of the Industrial Relations Department of a well-known industrial company:

In February, 1920, 111 boys under 18 years of age were given the Intelligence Tests, Series I. The results of these tests were shown to only one person in the organization outside of the Industrial Relations Department. They were then filed away and no use made of them. Each boy tested went along as usual, succeeding or failing solely on the merits of his work.

In November, 1921, the tests were removed from the file and the scores compared with the progress made by the boys during the intervening year and nine months.

Average score of all tests (111) .....	38.7
Average score of those still in the Company's employ (63) .....	41.6
Average score of those no longer in the Com- pany's employ (48) .....	35.1

We have here some evidence that the boys making higher scores are more likely to remain with the Company. The point becomes more impressive when we recognize that those who have left the employ of the Company have done so for one of three definite reasons. Some left to accept better positions; others left to return to school; still others were discharged. Disregarding those who left to return to school we have the following comparison:

Average score of those who accepted better positions .....	44.7
Average score of those discharged.....	28.1

The judgment of the department heads respecting the value of boys to the Company is expressed in the form of salary advances or promotion to positions of increased responsibility. The following shows the correspondence between this practical judgment upon the one hand and the test scores upon the other. The figures relate only to the boys in the employ of the Company in November, 1921.

Average score of the 10 boys doing best in the Intelligence Tests .....	57.3
Average salary for these 10 boys .....	\$16.00
Average score of the 10 boys doing poorest on the Intelligence Tests .....	23.1
Average salary of these 10 boys .....	\$13.40
Average score of the 29 boys who have been promoted to junior clerkships .....	46.2
Average score of the 34 boys who have received no such promotion .....	35.1
The boy who receives the highest salary made the best score on the test.	
The two boys making the lowest scores are receiving the lowest salaries paid to any of the boys.	

If a test score of 32 is used as a dividing line, we find that the following facts are true of the two groups thus formed:

1. Only 43% of the lower group remain with the Company.
2. The lower group contains only one of the 29 boys who received promotion.
3. The lower group contains all of the 16 boys who were discharged.
4. Of the upper group 61.7% remain with the Company.

5. Of the boys who have received promotion 96.5% came from this group.

6. All of the boys who left the Company for better positions not only came from this group but had test scores of 38 or better.

The executives who were over these boys were asked in November, 1921, to give their opinion of the boys' future value to the Company, based upon what they had actually shown in their departmental work thus far. They were instructed to attach the following meanings to the symbols used:

A—Probable high-grade executive ability

B—Probable minor executive ability

C—Without evident executive ability but good clerical timber

D—Probably best adapted for highly mechanical job

In a general way, it will be noted that the "A's" and "B's" are most common among those who ranked highest in the test, while among those who made a test score of 49 or less no "A's" are found and comparatively few "B's."

Attention is called to a few specific cases:

Case Number 2 shows a very high test with a "C" rating. This boy was dissatisfied with his position because it made no real demand upon his mental resources. He has since been transferred out of the department into a position commensurate with his ability and he is doing excellent work, his new department head recently giving him an "A" rating.

Case Number 7 also shows a high test and a "C" rating. This rating was due to apparent lack of interest and energy on the part of the boy. It later developed that he was suffering from a serious ailment of long standing which finally required him to go to the hospital for treatment. There is reason to believe that physical disability was the cause of his apparent apathy.

Case Number 18 shows a very good test, a "C" rating, and a low salary. This boy has been tried in several departments and has exhibited listlessness in all of them. We have not yet discovered any removable cause. Apparently it is a case where high mental caliber is not correlated with other qualities which make for success.

TABLE 8  
SUMMARIES OF DATA ON INTELLIGENCE TESTS

Classification	Number of Boys	Average Salary	Average Test	
A	14	\$16.78	66.3	
B	51	14.48	54.7	
C	49	13.74	50.7	
D	23	14.26	39.4	
E	1	12.00	26.0	

Classification	Number of Boys	Average Salary	Average Test	Average Age
60+	40	\$15.49	67.3	17-6
40-59	77	13.98	49.8	17-4
—40	21	13.82	33.5	17-5

Age Groups	Number of Boys	Average Salary	Average Test	
18	42	\$16.73	54.8	
17	51	14.15	52.4	
16	45	12.49	50.1	

Average salary of entire club.....		\$14.39
Average test of entire club.....		52.4
Average age of entire club .....		17-5

Cases Number 19 and Number 20 are two boys who are working in a department whose head is not himself a strong executive. We question the correctness of the ratings.

Case Number 27 is a pronounced instance of a boy of good mind who shows a strong preference for duplicating machine work. As this work pays a bonus in addition to the regular salary, and since home conditions make it desirable that he earn the largest possible income at this time, we doubt whether the "D" rating is really justifiable.

In a number of instances a question mark follows the rating. In each of these instances the person making the rating was undecided between the rating given and the next higher rating symbol.

Following are given certain summaries which were made from the above data:

TABLE 9  
General Office—July 1, 1922

Case	Age	Test	Rating on Present Job	Salary
1	18-1	84 $\frac{1}{2}$	A	\$18.00
2	18	82 $\frac{1}{2}$	C	16.00
3	16-11	75 $\frac{1}{2}$	A	14.00
4	16-3	75 $\frac{1}{2}$	A (?)	13.00
5	17-5	74 $\frac{1}{2}$	B	14.00
6	17-1	74 $\frac{1}{2}$	B	12.00
7	17	73	C	13.00
8	18-3	72 $\frac{1}{2}$	A	16.00
9	17-9	72 $\frac{1}{2}$	A	20.00
10	17-6	71 $\frac{1}{2}$	B	13.00
11	17-11	71 $\frac{1}{2}$	B	16.00
12	16-6	69 $\frac{1}{2}$	B	12.00
13	18	69 $\frac{1}{2}$	B	16.00
14	18-7	69 $\frac{1}{2}$	B	18.00
15	16-6	69	B	15.00
16	18-5	68	A	18.00
17	18-3	67 $\frac{1}{2}$	B	18.00
18	17-3	66 $\frac{1}{2}$	C	10.00
19	17-1	66 $\frac{1}{2}$	C	14.00
20	17-10	66 $\frac{1}{2}$	C	18.00
21	19-9	66	B	20.00
22	16-11	65 $\frac{1}{2}$	B	14.00
23	18-6	65 $\frac{1}{2}$	B	21.00
24	16-6	64 $\frac{1}{2}$	C	15.00
25	18-9	64	B	20.00
26	16-5	63 $\frac{1}{2}$	B (?)	12.00
27	17-9	63	D	13.00
28	18-1	63	C	14.00
29	16-10	62 $\frac{1}{2}$	A	14.00



TABLE 9 (Continued)

Case	Age	Test	Rating on Present Job	Salary
30	16-8	62½	B	\$12.00
31	16-4	62	B	10.00
32	18-7	62	A	19.00
33	17	61½	C	12.50
34	18-7	61½	A	20.00
35	16-6	61½	B	11.00
36	18-10	61½	A	18.00
37	18	61	B	17.00
38	17-11	60½	A	15.00
39	18	60½	B	17.50
40	16-1	60	B (?)	12.00
41	17-2	59½	B	15.00
42	17-4	58½	A	14.00
43	18-4	58	A	17.00
44	17-5	58	C	12.00
45	18-3	57½	C (?)	14.00
46	16-6	57½	C	15.00
47	18-3	57½	B	18.00
48	16-5	57½	B (?)	12.00
49	17-5	57	B	12.50
50	18-4	57	B	18.00
51	17-4	57	C	15.00
52	18-2	57	B	16.00
53	17	56½	C	12.00
54	16-10	56½	C	16.00
55	16-7	56	B	10.00
56	18	56	B	14.00
57	16-2	55½	B	10.00
58	16-8	55½	C	13.00
59	17-1	55½	A	19.00
60	18-6	55½	B	18.00
61	18-6	55	B	18.00
62	17-6	54½	B	16.00
63	17-7	54½	B	14.00
64	17	54	B	13.00
65	16-2	53½	B (?)	10.00
66	18-4	53½	C	13.00
67	17-3	53	B (?)	13.00
68	17-1	53	B	14.00

## PERSONNEL MANAGEMENT

TABLE 9 (*Continued*)

Case	Age	Test	Rating on Present Job	Salary
69	17-4	52	C	\$15.00
70	17-9	52	C	17.00
71	17-3	51 $\frac{1}{2}$	B (?)	12.00
72	17-3	51	C	12.00
73	16-6	51	C	14.00
74	17-6	51	C	12.00
75	18-6	50 $\frac{1}{2}$	C	16.50
76	16-10	50	B	13.00
77	17-11	50	C	17.50
78	16-4	49	C	11.50
79	17-2	49	D	16.00
80	16-7	49	C	15.00
81	18-1	48 $\frac{1}{2}$	C	16.00
82	17-4	48 $\frac{1}{2}$	B (?)	13.00
83	17-6	48 $\frac{1}{2}$	B	16.00
84	16-6	48 $\frac{1}{2}$	C (?)	10.00
85	18-3	47 $\frac{1}{2}$	D	14.00
86	16-4	47	C	14.00
87	17-1	47	C	12.50
88	16-9	46 $\frac{1}{2}$	D	13.00
89	17-2	46 $\frac{1}{2}$	C	10.00
90	17	46 $\frac{1}{2}$	B	16.00
91	18-6	46 $\frac{1}{2}$	C	15.00
92	16-6	46 $\frac{1}{2}$	B	11.00
93	18-1	46 $\frac{1}{2}$	C	14.00
94	18-3	45 $\frac{1}{2}$	D	15.00
95	16-3	45 $\frac{1}{2}$	B	10.00
96	18-3	45	B	18.00
97	18-5	45	D	16.00
98	16-2	45	C	9.00
99	16-5	44 $\frac{1}{2}$	C	11.00
100	17-9	44 $\frac{1}{2}$	B	19.00
101	16-3	44 $\frac{1}{2}$	C	13.00
102	17-7	44 $\frac{1}{2}$	D	15.00
103	17-3	44	C	12.00
104	18-7	44	D	14.00
105	18-4	43 $\frac{1}{2}$	D	16.00
106	16-8	43 $\frac{1}{2}$	B	13.50
107	17-7	43 $\frac{1}{2}$	C	14.00

TABLE 9 (Continued)

Case	Age	Test	Rating on Present Job	Salary
108	16-7	42½	C	\$12.00
109	17-6	42	C	17.50
110	17	42	D	11.50
111	17-6	42	C	13.00
112	16-11	41½	D	13.00
113	16-9	41	C	12.00
114	16-7	41	D	12.00
115	18-2	41	C	17.00
116	16-5	40½	D	9.00
117	21-7	39	C	18.00
118	16-6	39	B	14.00
119	18-6	38½	D	16.00
120	17	37½	D	12.00
121	17-4	37½	B	15.00
122	18-6	37½	C	15.00
123	16-5	36½	C	12.50
124	17-9	36½	B	14.00
125	16-8	36½	C	10.00
126	16-6	36½	C	11.00
127	17-11	36	C	13.00
128	18-3	35½	D	17.00
129	17	35	D	12.00
130	18-5	33	D	14.00
131	16-10	31	B	12.00
132	18-3	29½	D	14.00
133	16	28½	D	12.00
134	16-3	26½	D	16.00
135	17-6	26	E	12.00
136	17-3	25	D	12.00
137	16-2	23½	D	12.00

In the light of the results described above it seems that two advantages might be gained if the tests were used at the time of hiring. First, by avoiding in this company, so far as possible, hiring of boys who test below 32, the number of cases where it is found necessary to discharge boys for incompetency should be materially reduced. Second, by knowing the boys who make especially high scores it might

be possible to prevent them from being placed in blind-alley positions where little advancement is possible, and thus prevent high-grade boys from leaving the service of the Company for better positions.

If the tests were given to the boys some time after they are first hired, which is the present intention, they should serve as a guide to the Employment Department when called upon to recommend for transfer or promotion. If used conservatively in this way, with a full understanding that the test scores are only to be regarded as one factor in judging the probable Capacity of the boy for advancement, they should reduce turnover somewhat, and help to save the best material for the Company.

#### AN EXPERIMENT WITH JUNIOR EXPERTS

In 1915 a textile manufacturing company had in its employ a group of 26 junior experts whose work was to devise new processes, to invent new equipment, to install efficiency systems, and, in general, to increase the production of the plant. Most men employed for this work failed. In an attempt to discover the qualities possessed by those who were very successful, very inefficient, and moderately successful, all the junior experts were studied and all were given Mental Alertness Tests.

Five years thereafter, in 1920, only 14 of the original 26 were still in the employ of the Company. These 14 were then studied again. The employee who 5 years previously had stood highest in the Mental Alertness Tests was called A. The employee who had ranked next highest was called B, and so on, the one ranking lowest being called M. Each executive under whom they worked was asked to rank them "according to their value to the Company, having in mind both their present and their probable future value." These judgments of the executives were combined into the Firm Rank. Table 10 indicates the agreement between the Test Rank of 1915 and the Firm Rank of 1920. The junior ex-

pert who stood first in the Mental Alertness Tests of 1915 was in 1920 judged by his employers to be the best man of the group. The man who stood lowest in the Mental Alertness Tests in 1915 was judged by his employers to be the poorest of the group in 1920. This perfect agreement was found only in three cases, e. g., the cases of A, J, and N. The agreement between the standing in the tests and the standing in the Firm Rank is high. When reduced to its statistical formulation, the coefficient of correlation was .66.

As a general rule, therefore, it became evident that those who stood highest in the Mental Alertness Tests developed most rapidly and became the most valuable employees of the Company.

TABLE 10  
AGREEMENT BETWEEN TEST RANK AND FIRM RANK

Junior Expert	Mental Alertness 1915	Firm Rank 1920
A	1	1
B	2	9
C	3	7
D	4	5.5
E	5	2
F	6	3
G	7	11
H	8	5.5
I	9	4
J	10	10
K	11	12.5
L	12	8
M	13	12.5
N	14	14

#### AN EXPERIMENT WITH MINOR EXECUTIVES

In a large clothing manufacturing establishment six managers in direct charge of the business have been attempting to keep in very close contact with their minor executives, and to know of their work as intimately as possi-

ble. In 1915 the 28 minor executives were given Mental Alertness Tests quite similar to Series I. On the basis of their standing in these tests, each minor executive was ranked. The man passing the highest was ranked number 1, and the man standing lowest was ranked number 28. Each of the 6 managers then attempted to rank each minor executive "according to his general value to the Company, having in mind both his present and his probable future value." The minor executive whom the manager regarded as most valuable was marked number 1, and so throughout the list of 28 in so far as the manager felt sufficiently acquainted with each minor executive to rank him.

The results attained in the Mental Alertness Tests and the rankings by the managers are shown in Table 11.

Code for Table 11:

1. The column of capital letters to the left symbolizes the names of the 28 minor executives.

2. The second column indicates the relative rank of each of the 28 in the Mental Alertness Tests; e. g., A stood at the top, and BB at the bottom.

3. The Firm Rank in the third column is the combined judgment of the six (or less) managers.

4. The Arabic figures in the fourth and other columns express the ranking of one of the managers (designated as Manager I, and so forth) for so many of the minor executives as he felt capable of judging, e. g., he judged minor executive A as the sixth best, minor executive B as the best, and so forth.

5. The three place figures at the bottom express in terms of coefficients of correlation the agreement between (a) the Test Rank in mental alertness and the ranking by each of the six managers; (b) the Firm Rank and the Test Rank; (c) the Firm Rank and each of the six managers; (d) Manager I and each of the other five managers; (e) each of the managers and all the others.

The highest average correlation is .739 obtained by I; the second highest correlation, .668 obtained by the Tests;

TABLE II  
RESULTS OF MENTAL ALERTNESS TESTS COMPARED WITH  
RANKINGS BY MANAGERS

Name	Test Rank	Firm Rank	Manager I	Manager II	Manager III	Manager IV	Manager V	Manager VI
A .....	1	10	6	5	13	9	12	12
B .....	2	1	1			2		3
C .....	3	2	2	9	1	11		1
D .....	4	5	11	3	7	3	15	5
E .....	5	9	13				10	10
F .....	6	3	4	6		20	2	2
G .....	7	4	4	1	3	6	6	
H .....	8	14	14		15	26	20	6
I .....	9	12	9	13	25	5	8	16
J .....	10	8	10				3	14
K .....	11	15	15	20		14	25	8
L .....	12	7	8	15	9	8	1	15
M .....	13	6	5	8	5	15	5	13
N .....	14	13	12	18			9	18
O .....	15	16	16				11	19
P .....	16	20	27	23	21		14	9
Q .....	17	23	20	16	19	23	27	26
R .....	18	22	19	28		27	22	17
S .....	19	21	23	21	17		18	24
T .....	20	26	25				16	25
U .....	21	18	18				24	11
V .....	22	17	17	26			4	
W .....	23	19			27	17	13	22
X .....	24	24	26		23	18	17	23
Y .....	25	25	22	24		21	23	27
Z .....	26	11		11	11	12	19	4
AA .....	27	27	24		28	24	26	28
BB .....	28	28	28				28	20
Tests.....			.850	.736	.633	.582	.535	.674

COEFFICIENTS OF CORRELATIONS

Firm Rank.825	.951	.844	.879	.689	.730	.802
I.....		.786	.814	.598	.725	.663
II.....			.691	.627	.353	.611
III.....				.490	.438	.706
IV.....					.577	.493
V.....						.320
II,III,IV,V .768	.886					

TABLE 12

RANKINGS OF 1915 AS COMPARED WITH RANKINGS OF 1920 FOR  
THE SAME MINOR EXECUTIVES

Name of Minor Executive	1915 Test Rank	1915 Firm Rank	1920 Firm Rank	Ia	Ib	IIa	IIb	IIIa	IIIb	IVa	IVb	Va	Vb	VIa	VIb
Q	17	23	21	20	19	16	14	19	..	23	..	27	20	26	26
M	13	6	11	5	9	8	13	5	..	15	..	5	10	13	13
AA	27	27	15	24	28	..	..	28	..	24	..	26	26	28	28
D	4	5	2	11	2	3	1	7	4	3	1	15	1	5	4
A	1	10	8	6	12	5	10	13	..	9	..	12	2	12	14
K	11	8	6	10	7	..	7	..	12	..	7	3	5	14	6
E	5	9	3	13	4	..	4	..	2	..	5	10	4	10	3
H	8	14	16	14	13	..	..	15	26	26	15	20	18	6	10
J	10	7	7	8	6	15	8	9	11	8	3	1	9	15	9
I	9	12	17	9	10	13	..	25	14	5	..	8	15	16	27
R	18	22	19	19	18	28	19	..	24	27	17	22	19	17	15
B	2	1	1	1	1	..	..	..	1	2	..	..	3	3	2
G	7	4	5	4	5	1	5	3	6	6	..	6	12	..	..
O	15	16	18	16	27	..	..	..	..	..	..	11	14	19	13
F	6	3	4	3	3	6	2	..	9	20	..	2	6	2	1
N	14	13	12	12	16	18	..	..	17	0	9	9	11	18	12
X	24	24	14	26	17	..	..	23	16	18	11	17	13	23	19
P	16	20	22	27	21	23	..	21	27	..	19	14	17	9	16
U	21	18	13	18	14	..	..	..	22	..	..	24	16	11	5
Y	25	25	24	22	20	24	17	..	..	21	..	23	27	27	25
W	23	19	25	..	26	..	..	27	21	17	21	13	..	22	..
C	3	2	10	2	8	9	16	1	..	11	..	..	..	1	11
BB	28	28	26.5	28	23	..	..	..	..	..	..	28	25	20	21
L	12	15	23	15	22	20	..	..	..	14	..	25	24	8	20
Z	26	11	9	..	11	..	11	11	7	12	13	19	8	4	8
V	22	17	26.5	17	24	26	..	..	..	..	..	4	21	..	24
S	19	21	20	23	15	21	..	17	19	..	23	18	22	24	18
T	20	26	28	25	25	..	..	..	..	..	..	16	28	25	23

## COEFFICIENTS OF CORRELATION

Firm Rank															
1920 ..689 823				730	804		729		503		476		629		
Ib.....				796		896		858		805		820		700	
IIb.....					831			667		829		749		845	
IIIb.....							695			777		868		647	
IVb.....										715		873		727	
Vb.....												601		780	
VIb.....														769	

third, .634 by II; fourth, .628 by III; fifth, .577 by VI; sixth, .561 by IV; seventh, .491 by V.

It will be observed that the managers agree with the Tests more closely than they agree with each other. The most perfect agreement, e. g., .951, is found between the



Firm Rank and Manager I. The least agreement, e. g., .353, is found between Manager II and Manager V.

In 1920 the 6 managers again ranked the 28 minor executives. In Table 12 is reproduced most of the material presented in Table 11, together with the new rankings of 1920, and the coefficients of correlation based thereon. The old rankings are indicated in the columns under a, and the new rankings under b. It should be noted that the agreement between the Mental Alertness Tests of 1915 and the Firm Rank of 1920 as expressed by the coefficient of correlation is .689. The most perfect agreement is between the rankings of Manager I and Manager II in 1920, e. g., .896. The least agreement is between the Firm Rank of 1920 and the rankings of Manager V in 1915, e. g., .476. Manager V was a poor prophet, and his judgment in 1915 did not correspond closely to the later progress made by the 28 minor executives. The prophetic value of Manager I's judgment as expressed in 1915, and also the judgments of Managers II and III, were more accurate than that of the psychological tests. On the other hand, the Mental Alertness Tests were more accurate than the judgments of Managers IV, V, and VI.

If we may generalize on this limited experiment, it may be as follows: Managers who know their minor executives well and who are good judges of men can estimate future success better than can Mental Alertness Tests. But men who do not know their subordinates well, or are not good judges of men cannot estimate future success as well as may be indicated by Mental Alertness Tests.

#### AN EXPERIMENT WITH ENGINEERS

In June, 1915, a manufacturing company made a study of 16 of their younger engineers. They were given a series of Mental Alertness Tests somewhat like Series I. They were then ranked by their immediate superiors as to their value

to the company, having in mind both present and probable future value.

In September, 1920, 11 of these original 16 were still in the employ of the company. These 11 were again ranked by their immediate superiors.

The results, so far as the 11 are concerned, of the study of June, 1915, and of September, 1920, are shown in Table 13.

TABLE 13  
COMPARISONS OF TEST RANKS (1915) AND FIRM RANKS (1920)  
OF 16 ENGINEERS

Engineers	Test Rank in Mental Alertness June, 1915	Firm Rank September, 1920
A	1	4
B	2	2½
C	3	1
D	4	2½
E	5	6½
F	6	8
G	7	5
H	8	11
I	9	6½
J	10	9½
K	11	9½

The agreement between the standing of the engineers in the Mental Alertness Tests and their standing in the Firm Rank is very close. The coefficient of correlation is .810. In 1915, the future advancement of these men was very accurately indicated by their standing in the Mental Alertness Tests. The number included in the experiment is, of course, too small to be conclusive, but the indications are that mental alertness is a very important factor in the success of engineers in this particular company.

In bringing to a conclusion this discussion of Mental Alertness Tests, we hardly need point out the significance of research within individual companies. The fact is established that tests of this kind serve a very useful purpose in

helping to choose workers wisely for certain kinds of work; statistics of this kind, developed in a thoroughly scientific manner, establish standards which help to eliminate in advance those persons who are more likely than their associates to fail in the proposed work and to engage those who are more likely to succeed.

But the necessity for establishing such standards anew for other occupations and for the same occupations in other companies is apparent. Generalization is misleading, even dangerous. Hidden factors in one situation, unknown and unrecognized, may render useless standards which have been developed in another situation which, on the surface, seems identical.

On the other hand, however—and this is the real significance of these two chapters—Mental Alertness Tests are extremely valuable instruments in selection and placement where the preliminary work has been done well. Certainly, to a degree not possessed by other instruments of the kind, Mental Alertness Tests seem to possess those prophetic qualities with which industrial managers desire, without exception, to equip themselves as soon as science makes it possible.

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## XVI

### THE CONSTRUCTION OF SPECIAL ABILITY TESTS

Physical Tests. Tests for Muscular Strength. Manual Dexterity Tests. Merchandise-Knowledge Tests. Tests for Specific Trade Ability. Clerical Tests.

SPECIAL Ability Tests differ from Intelligence or Mental Alertness Tests. The Mental Alertness Test is an instrument which determines mental alertness and helps us to ascertain a person's *ability to learn*, his general capacity for acquiring knowledge. It has, consequently, a definite prophetic value. The Special Ability Test, on the other hand, is an instrument for discovering *present ability* or *present knowledge*, ability or knowledge already acquired. It has little or no prophetic value.

Neither the Mental Alertness Test nor the Special Ability Test can be said to be definitely in the field of exact science. Nevertheless, a knowledge and appreciation of scientific procedure and a continuous adherence to the principles of science are the bases of all legitimate test results. The construction of such tests must, consequently, be carried out along the lines of scientific procedure.

No test, however well established, should be relied upon solely in selection and placement and in other personnel adjustments. The results of the test should be weighed together with all other available facts as to the Capacities and Interests of the individual tested. When used thus to check other evidences of ability, they assist us to judge more accurately in adjusting workers to their work.

Special Ability Tests cover a variety of fields. Some of the more common are tests for:

- a. Physical strength (useful in employing laborers)

- b. Manual dexterity (useful in employing machine operators and hand workers)
- c. Knowledge of a commodity (useful in employing salespeople, material inspectors and buyers)
- d. Knowledge of a trade or industrial operation (useful in employing artisans, factory workers, firemen, engineers and power-plant operators)
- e. Knowledge of various types of clerical work (useful in employing file-clerks and other specific types of clerical workers)

It is not our purpose in this chapter to describe in detail all the tests used (their name is legion) nor to discuss the results obtained by such tests. Instead, we propose to indicate some of the possibilities for research in this field and to explain the methods employed in several principal types of such Special Ability Tests.

#### PHYSICAL TESTS—TESTS FOR MUSCULAR STRENGTH

There are certain kinds of work where physical strength is more important than all other qualities combined. In such cases tests designed to measure physical strength are of real advantage in the employment office.

Actually very little has been done to determine what specific *kinds* of physical strength are needed in specific kinds of work. This is significant of the opportunity for constructive research when it is realized that for a considerable percentage of common labor the element of physical strength of the individual is the one outstanding requirement of the work.

There is information available regarding physical characteristics, but little attempt has ever been made to discover the relation of individual differences in physical strength to success in work demanding constant heavy lifting or continuous muscular exertion.

As early as April, 1895, Dr. J. H. Kellogg of Battle Creek,

read before the American Association for the Advancement of Physical Education, a paper on the "Value of Strength Tests in the Prescription of Exercise." In this paper he presented the results of strength tests given to men and women for 20 years previously at the Battle Creek Sanatorium. He presented the results of testing 48 muscles of 600 men and 600 women. His results are too complicated for industrial use as they were primarily obtained for the study of invalids. But *the methods used* point the way to the development of a simplified system for the physical measurement of so-called common labor.

The most interesting conclusions drawn by Dr. Kellogg from measurements of 200 healthy men and 200 healthy women are:

a. The total strength of the average woman as compared with the average man is .53, while the weight of women to men is .86. The height of the average woman to man is .92. It is thus seen that the greatest disparity is in strength.

b. Weight increases with the *cube* of the height, while muscular strength increases only in proportion to the *square* of the height in inches. This law gives the shorter individual the advantage over the taller.

A man 70 inches tall should have a total muscular strength of 4,900 pounds.

Hastings' Manual for Physical Measurement gives the results of measuring 5,000 men on four muscles, viz:

Muscles	E	D	C	B	A
Right forearm (pounds)	77.9	92.7	103.	113.3	128.1
Left forearm (pounds)	76.2	90.7	100.	109.8	123.8
Back	293.5	294.0	332.	370.	424.5
Legs	311.2	373.6	417.	460.4	522.8
	704.8	851.0	952.	1,053.5	1,199.2

With this start, further investigation should reveal facts that would make it possible to test an applicant for a com-

mon labor job and determine how to classify him as regards his physical strength.

#### MANUAL DEXTERITY TESTS

In work requiring the quick and accurate use of arms, hands and fingers, such as the operation of cotton spinning machines, rapid punch presses, office calculating machines, and the like, or in work involving rapid operations by hand on small material parts, the speed and precision of movement or touch are frequently the outstanding requirements. In such cases manual dexterity tests of proved value serve a very real purpose in the selection and placement of employees.

Manual dexterity tests, like physical strength tests, have been experimented with for a number of years and have given promise of being useful in the selection of employees for certain kinds of "quick" and "fine" work.

There have been a number of devices designed for experiment in testing manual dexterity. Professor Hugo Munsterberg, of Harvard University, made many laboratory experiments with the assembly of simple mechanical devices. There seems to have been no proved relationship, however, between these laboratory experiments and experience in the occupations.

Walter Dill Scott has designed a mechanical device for testing dexterity, illustrated in Figure 44.

This device has three metal-bound openings in an easel inclined at a convenient angle to the operator. Under each opening is a counter which registers when the point of a stylus is thrust into the opening. The test consists of thrusting the point of the stylus through each opening in sequence as rapidly as possible. This is done with the right hand for one minute, then with the left hand for one minute. Upon reading the total of the three counters the number of accurate strokes is obtained.

A wide variation in individuals is observed, but the in-



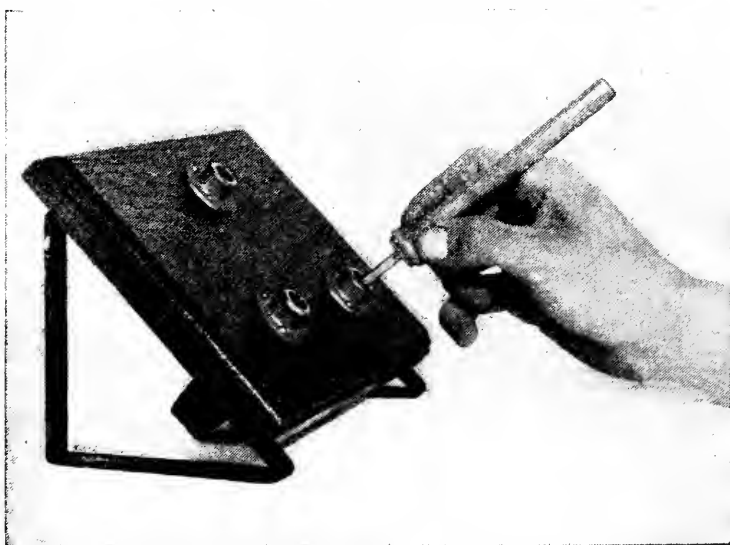
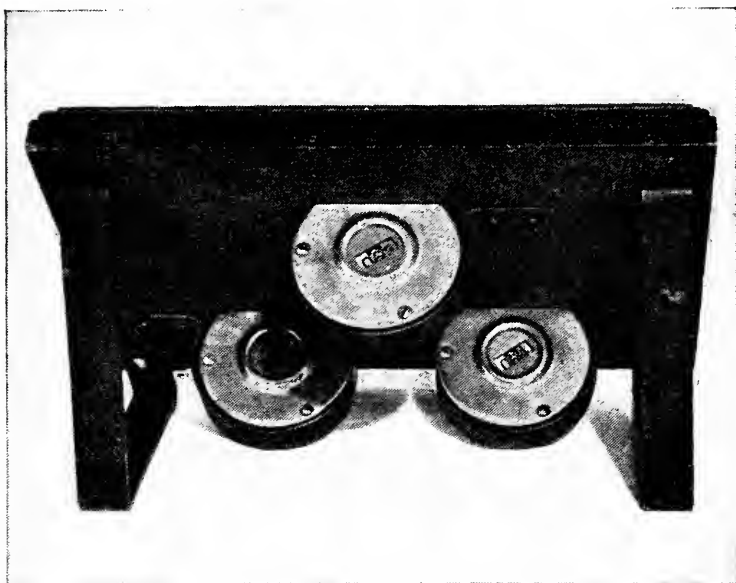


Figure 44: Scott's Mechanical Device for Testing Dexterity

terpretation of these individual differences is not a simple matter. This device is being used in some employment offices with advantage. Like all tests, however, its value in selecting workers for any particular work must be determined anew by a study of the individuals' scores in relation to their success in the work. An opportunity exists for valuable constructive work in this field.

#### MERCHANDISE-KNOWLEDGE TESTS

The use of tests to determine how much a person knows about a commodity he is selling, buying, inspecting, or handling is comparatively new in employment practice. In 1920, one of the leading department stores in the East standardized tests of this kind for its salespeople in about 50 departments. These tests were used under the name of "Departmental Interview."

Departmental Interviews are not as reliable in their findings as are properly standardized tests for mechanical skill, but they are of very real assistance when used to supplement the judgment of the interviewer. They are primarily valuable in determining the merchandise knowledge of applicants for sales positions. Their value has also been demonstrated as aids in measuring the ability of the present sales force.

It has been found in practice that a carefully supervised rating given by a Departmental Interview agrees fairly closely with the salesperson's *general value*. Since so many qualities enter into selling ability, we should not expect any one measurement to give a complete picture of a salesman's ability. However, knowledge of merchandise seems to stand out as an important qualification for successful salesmanship and the Departmental Interview seems to give an adequate measurement of departmental knowledge.

The successful Departmental Interview must meet the following requirements:

1. It must give a fairly reliable statement of the knowledge the salesperson has in his selling field.
2. It must be sufficiently simple and standard that any intelligent person knowing nothing of the department can use it satisfactorily to test applicants after only a little special training.
3. It must be as short and easily given as is consistent with accurate results.

These requirements are made by an adaptation of the method used in making Army Trade Tests.

Departmental Interviews measure one qualification for salesmanship—knowledge of merchandise. But as we have said, salesmanship is a complex ability into which enter the elements of appearance, personality, mental alertness, hard work, and many other traits besides knowledge of merchandise. To obtain a statement of the qualifications of a salesperson in these various phases, use may be made of standard Rating Scales, Mental Alertness Tests, and of course, Departmental Interviews. While no one of these methods alone gives a complete statement of selling ability, each contributes to the total size-up.

Departmental Interviews tell what a salesperson's information about his department is *now*—at the time of the interview. It makes no pretense whatever at prophecy as to the future ability of inexperienced applicants. It is not at all for the purpose of telling how good a person will be after training and experience or what future progress will be made. It measures the sales information actually acquired up to the present time and hence is not a means of determining the aptitude of persons without experience in selling the specific line of merchandise. The Departmental Interview answers this one question: Is the individual an experienced salesperson for this particular department, and if so, how good is he from the viewpoint of the amount of trade information of that department he possesses?

In constructing each Departmental Interview, a group of

employees were selected and classified into four grades: superior salespersons, average salespersons, poor salespersons, and persons in other departments who knew nothing of the merchandise for which the Departmental Interview was projected. In the case of the Departmental Interview for Boys' Clothing, for instance, the salespersons were chosen and each was shown a number of pictures of boys' suits of various kinds, and samples of cloth. Each was required to name and identify them so far as he was able to do so. Those questions were stricken out which persons of little or no knowledge of Boys' Clothing could answer as well as persons of established knowledge of that merchandise (persons whose superior knowledge was indicated by the executives' advance ratings of the salespersons). Those questions were retained which could be answered by most of the Class A salespersons, by fewer Class B salespersons, by very few Class C salespersons and by none (or practically none) of those selected from other departments as knowing nothing of boys' clothing.

A sample of such a Departmental Interview appears as follows:

All questions to be scored Right (R) or Wrong (W).

- |            |  |
|------------|--|
|            | 1. Q. What is the range of sizes in big boys' suits?           |
|            | A. 7 (8) to 18 (19)  |
| EXHIBIT I. | 2. Q. For what ages is a suit like C suitable? Give the range. |
|            | A. 3 to 8  |
|            | 3. Q. What kind of pleat has D?                                |
|            | A. Inverted  |
|            | 4. Q. What kind of belt has A?                                 |
|            | A. Disappearing (Convertible) (In or Out)                      |
|            | 5. Q. What kind of collar has E?                               |

- A. Notch (Convertible)
6. Q. What is another name for a regulation suit?
- A. Middy (Peter Thompson) (Sailor)
7. Q. What is the name of the decoration on the sleeve of a Middy Blouse?
- A. Chevron
8. Q. What are the coats of good suits usually lined with?
- A. Mohair (Alpaca)



Figure 45: Exhibit I for the Scott Company Departmental Interview for salesperson for boys' clothing

9. Q. Trousers of what heavy material are sometimes not lined?
- A. Corduroy
10. Q. Aside from serge, what material is coolest for summer suits for older boys?

A. Palm Beach (Kool Cloth) (Mohair)

11. Q. What color is a dress suit for a small boy 3 to 6?

- A. 1. White  
2. Blue

EXHIBIT II.

12. Q. What do you call A?

A. Poplin (Rep)

13. Q. What do you call B?

A. Galetta

14. Q. For what besides overcoats is C used? It has a large plaid in it.

A. Mackinaws

15. Q. What is D?

A. Palm Beach Cloth

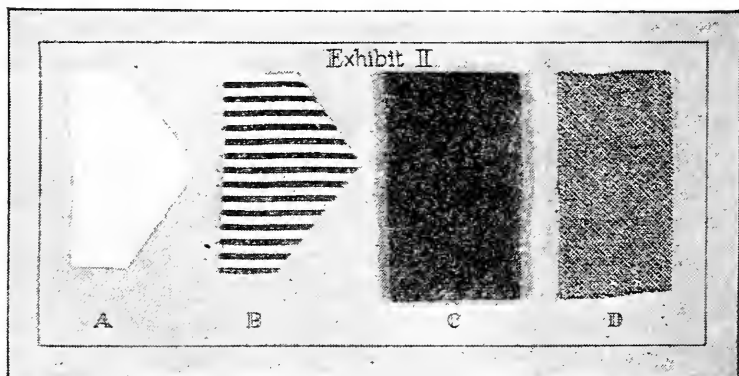


Figure 46: Exhibit II of the Scott Company Departmental Interview for salesperson for boys' clothing

EXHIBIT III.

16. Q. What do you call A?

A. Tweed (Homespun)

17. Q. What do you call a Cheviot like B?

A. Twilled (Diagonal) (Serge)

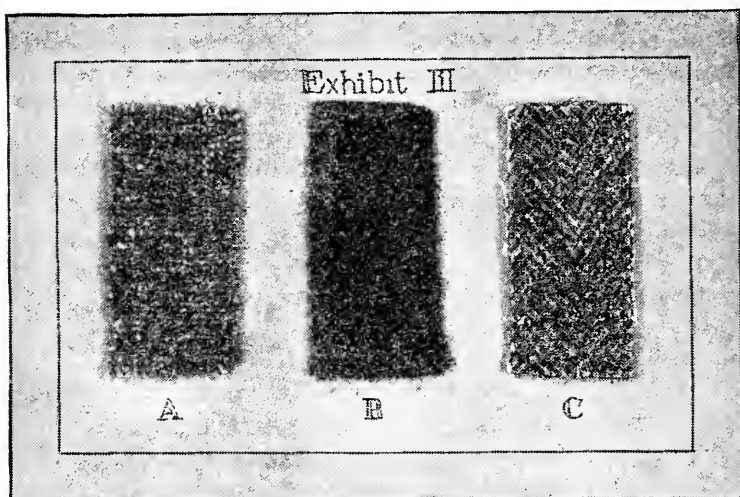


Figure 47: Exhibit III of the Scott Company Departmental Interview for salesperson for boys' clothing

18. Q. What is the weave of C?

A. Herringbone

#### STANDARDS FOR RATING

The score is the number of questions answered correctly.

<i>Score on 18 Q</i>	<i>Classification</i>
15 to 18 inclusive	Class A— <i>Excellent</i> knowledge of department information.
10 to 14 inclusive	Class B— <i>Fair</i> knowledge of department information.
0 to 9 inclusive	Class C— <i>Poor</i> knowledge of department information.

There is no mystery or trick about building up Departmental Interviews, but a knowledge of the factors involved in test building is essential, and infinite pains are required to secure satisfactory results. Each question must be asked in *exactly* the same way and the answer recorded verbatim. If a question produces involved or many different answers,

it should be reframed or eliminated as the interviewer who will eventually use the test may or may not be at all familiar with the subject matter involved. Therefore, questions which produce *one word* answers or numerals are best. There can then be no mistake in scoring the answer "right" or "wrong" when the test is later in actual use for selecting applicants or testing employees.

When all the original material has been boiled down, 150 items may have yielded only 18 or 20 test questions which meet the requirements of simplicity, ease in scoring, and discrimination value.

The real questions to be answered before the interview can be regarded as practical and ready for use are:

What scores do "experienced" people make on the *total* test?

What scores do people with limited experience make?

What scores do poorly qualified people make?

If the reader has followed the *practical* method so far of building the test by causing *practical* people to contribute its substance, the next step should be obvious.

The salespersons of known ability who were originally selected for cooperation in building the test were classified Excellent, Fair, Poor in knowledge of the goods. If the finished test of 20 questions has selective value it is evident that the "excellent" people should have given correct answers to most of the questions and the "fair" and "poor" people should range down the list.

The chart illustrated in Figure 48 shows how this discrimination was shown by the Departmental Interviews for salespersons in the Home Furnishing Department and in the Shoe Department. Each dot represents a salesperson. The ability-ratings made by the Department Heads are indicated by the letters A, B, C, and D in the left-hand margin. The numbers of questions answered are shown along the X-axis at the foot of each chart.

Selective methods of all kinds reach their highest degree of usefulness when they are sponsored by national organiza-



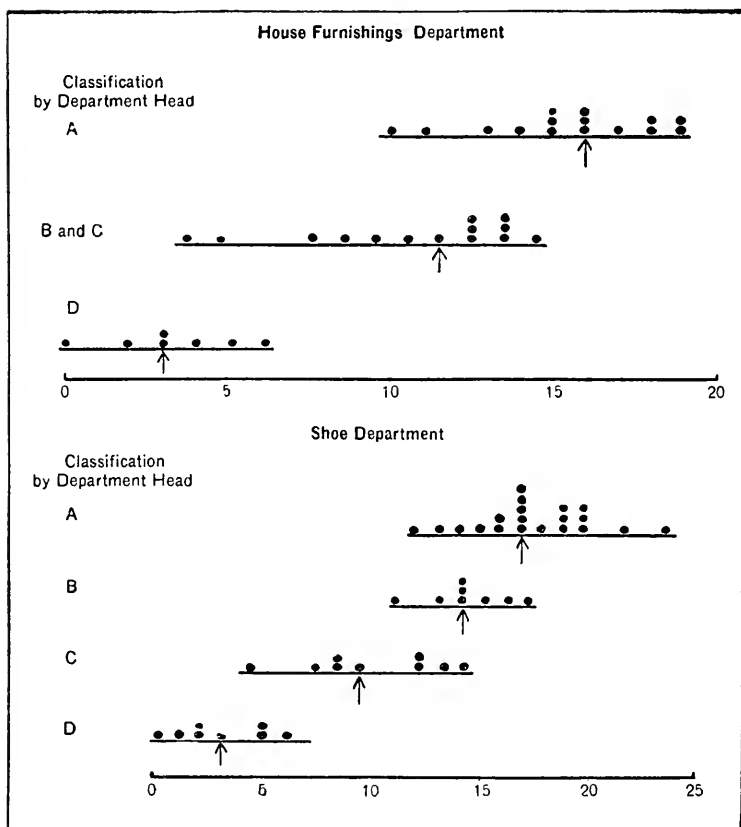


Figure 48: Departmental Interviews—Scores made by salespeople in two departments

tions, trade associations, or trade unions. For example, Merchandise-Knowledge Tests for Purchasing Agents could only be standardized satisfactorily under conditions where a large number of such people of known ability are accessible.

In any case, regardless of who sponsors the work, it should be supervised by a person informed in and sympathetic with the scientific point of view, trained in applied

psychology and experienced in the building of tests. The attempts of novices in this field are costly and dangerous.

#### TESTS FOR SPECIFIC TRADE ABILITY

The best approach to the study of this type of test is to answer the question: What is a Trade-Test?

A Trade Test is a method for determining a man's present proficiency in a given line of work. The test may be in the nature of a trade interview with questions and answers or it may be an actual trial job. In either case the test must fulfil certain requirements:

1. It must give a definite and reliable statement of the grade of skill possessed by the tradesman.
2. It must be so simple and standard that any intelligent man, knowing nothing of the trade itself, can use it satisfactorily after only a little special training.
3. It must be as short and easily given as is consistent with accurate results.

The type of Trade Test developed in the army has successfully met these requirements.

Since the aim of the test is to measure trade skill as it exists at the time of the test, it is well to see what is meant by this specially acquired skill or ability. Trade proficiency is made up of a body of trade knowledge more or less the same for all experts in the trade plus the ability to perform the operations of the trade. With these two primary elements there ordinarily goes an accumulation of incidental bits of information, not necessary for a good tradesman to have, but the having of which is a sign that the man is a good tradesman.

While there are all degrees of trade ability among the men in any trade, for convenience a classification into a few grades may be adopted. The terms Novice, Apprentice, Journeyman, and Expert are used. Novices are men with no trade ability whatever; Apprentices have acquired some

of the elements of the trade but have not become sufficiently skilled to be entrusted with any important task; Journey-men are qualified to perform almost any work of the trade; Experts can perform quickly and with superior skill any work of the trade and are able to plan and supervise.

The purpose of the Trade Test is to measure directly or indirectly these various degrees of trade skill. The test makes no attempt to show a man's general ability in all lines of work; it is limited to the one trade for which it was made. Moreover the test is not at all for the purpose of telling how well a man can learn the trade or what his future progress will be in the trade. It measures the trade ability the man has now—the skill he has actually acquired in the trade at the time of the test. Hence the test cannot be used under any circumstances as a means of determining aptitude for a trade or for deciding what trade a Novice should try to learn. Trade Tests answer this one question. Is the man a tradesman or is he not, and if he is, how good a tradesman is he?

The feature of the trade test method that makes possible the rating of a man's ability by an interviewer unfamiliar with the trade is the fact that the tests are "standardized." Standardization of a test means the testing of the test itself by thorough tryout among men actually in the trade. By finding out how well these tradesmen of various known degrees of ability do on the test it is possible to set standards by which, afterwards, unknown men can be rated.

The Trade Tests which have proved most useful where a fairly quick measurement of trade ability is desired, as in selection of applicants for employment or transfer, are the oral and picture tests. These are short interviews in which the candidate answers a specified list of standardized questions relating to his trade. Each answer is scored as correct or incorrect. Depending upon the total score made on the list of questions, the candidate is rated as Novice, Apprentice, Journeyman, or Expert in that trade. The

value of these tests depends in large measure upon the way they are constructed and upon the care with which they are checked against the actual known degrees of ability of men in the trade. A sample oral test, showing the form of the questions and standards for rating, is presented here:

## ORAL TEST FOR BLACKSMITH

## QUESTION 1

- Q. Why is a flatter used?  
A. To flatten (smooth) (straighten up) the work  
Score 4

## QUESTION 2

- Q. What is shown by white sparks flying from a piece of tool steel when it is in the fire?  
A. Steel is *too hot* (burning) Score 4

## QUESTION 3

- Q. Describe two ways to make a head on a bolt.  
A. Jump up (upset) (stove) ends of stock  
Draw out *body* (stem)  
Weld on a collar Any two, Score 4

## QUESTION 4

- Q. What is a good color of heat for forging iron?  
A. (1) White Score 4  
(2) White tinged with *yellow* (lemon) Score 4

## QUESTION 5

- Q. Name two different kinds of welds.  
A. Scarf (lap) Butt (jump)  
Cleft (V) (male and female) Fagot (roller)  
Any two, Score 4

## QUESTION 6

- Q. What tools do you use for rounding a piece of stock to three-quarters diameter?

# CONSTRUCTION OF SPECIAL ABILITY TESTS 299

A. Swedges (swage) Score 4

## QUESTION 7

Q. Name two common fluxes for welding, besides compounds.

A. Borax Sand Glass Iron fillings Any two, Score 4

## QUESTION 8

Q. What do you use for drawing lines on large pieces of hot work?

A. (1) Soapstone (2) Chalk Score 4

## QUESTION 9

Q. What do you use for tempering steel springs?

A. Oil Score 4

## QUESTION 10

Q. What do you use in case-hardening steel?

A. (1) Raw ground bone (2) Cyanid (3) Potash Score 4

## QUESTION 11

Q. What tool is used to make grooves?

A. Fuller (V-groover) Score 4

## RATING THE CANDIDATE

Score	Rating
17 and below	N
18 and 19	A—
20 to 32 inclusive	A
33 and 34	A+
35 and 36	J—
37 to 39 inclusive	J
40 and 41	J+
42 and above	E
There is no E— or E+ rating.	

Army tests were devised to help in the particular problem of finding skilled men to fill the demands of the military or-

ganization. It was necessary to select at once from among the thousands of men entering the camps those who possessed skill in special lines for which there was military need. A soldier claiming trade ability was given a test to determine first, whether or not he had such ability, and second, the degree of his proficiency.

A large number of tests were prepared for the army by the Trade Test Division of the Committee on Classification of Personnel. In each case, the trade was first analyzed; then the elements of information, judgment, and skill peculiar to that trade were put in such form that an unskilled examiner could give and score the test. The preliminary test was tried out on apprentices, journeymen, and experts actually on the job in industry. Novices were also examined to make sure that a score could not be made in the absence of trade skill. As a result of this tryout, those parts of the preliminary test most valuable in detecting trade ability were selected and put in the form of an Army Trade Test.

In selecting skilled workers in industry, some form of interview, including at least a few questions about the applicant's skill and experience, is almost always used. These interviews do not attempt, however, to give any definite rating of the man's proficiency. Trade Tests, on the other hand, aim to make these questions serve as a basis for a standardized grading of the candidate.

Trade Tests are primarily of value in three phases of personnel work—in hiring and assigning, in transferring and promoting, and in training. In the selection of new employees the tests show whether the applicant really has the skill claimed or the ability that his age, experience, and wage seem to indicate. When there is a question of transfer of workers, the tests give a knowledge of each man's ability—a means of helping determine which workers are competent to do other work, which ones should be laid off if circumstances enforce lay-offs, and which ones are of greatest technical value as a nucleus of a high-class work force.

Information gained from tests is also closely connected with the educational program. Lack of skill or knowledge in particular phases of a tradesman's ability may be detected and remedied. The tests may be used, moreover, to indicate the requirements of particular jobs and to give as standards by which to estimate the results of training courses for the various jobs.

Although Trade Tests are of use both in the army and in industry, the actual tests produced for army use are often not the best tests for industry. Method and technique have been the main contribution of the Army Trade Test Division. The Army Tests usually cover rather general trades; successful tests for industry, on the other hand, usually must cover subdivisions of trades and determine trade proficiency for particular occupations. The Army Tests must accordingly be widely supplemented by tests for workers in the specialized processes of industry.

#### CLERICAL TESTS

A rather different situation exists in many types of clerical work than exists in the skilled trades or in such semi-skilled occupations as machine operator. This is best illustrated in the type of situation involved in hiring, transferring, and training file clerks. There are at least four specific kinds of file clerks—Sorters, Numerical Filers, Alphabetical Filers, and Subject Classifiers. All of these require speed, some require more mental alertness than others, and some require what appears to be an inherent specific ability for this type of work which is not accurately brought out in the more general intelligence tests.

Considerable statistical evidence has been compiled to indicate that the File Clerk Test shown on pages 302 to 309 will classify file clerks according to their ability with a great deal of exactness. There is ground for the belief that the same test will help predict the future ability of unknown individuals regardless of whether they have had

**Do Not Turn This Page Until You Are Told To Begin**

Examining Company .....  
 Date of Test ..... Test conducted by .....  
 Name ..... Age ..... Sex, M or F .....  
 Applicant or Employee? .....  
 What has been your main occupation? .....  
 Just what work did you do? .....  
 How long have you worked at your occupation? ..... yrs. .... mos.  
 Filing experience ..... yrs. .... mos.  
 Draw a circle around the highest grade of school reached:  
 Grades 1, 2, 3, 4, 5, 6, 7, 8. High School, year 1, 2, 3, 4. College, year 1, 2, 3, 4.  
 At what age did you leave this highest grade? .....  
 Business or technical training: Write in the spaces provided the length of time you have  
 spent in any of the kinds of schools listed below.  
 Night ..... yrs. .... mos. Technical ..... yrs. .... mos. Correspondence ..... yrs. .... mos.  
 Business ..... yrs. .... mos. Company ..... yrs. .... mos. Trade ..... yrs. .... mos.  
 Name of schools where courses were taken .....  
 Kind of courses taken .....  
 If applicant, for what position are you applying? .....  
 If employee, in what department are you employed? .....  
 On what job? ..... How long have you worked on it here? .....

**INSTRUCTIONS**

On the inside pages there are some tests. You are told exactly what to do at the top of each test. If you finish a test, do not start the next test until you are told to.

You do not have to do all of each test in order to make a good score.

Do not turn this page until you are told to begin.

Series A	Series B	Series C
I :	I :	V :
II :	II :	VI :
IV :	III :	Total :
Total :	Total :	
Assignment: .....		

T S CO.  
 Performance Trade Test  
 2331 P 5-20  
 File Clerk

Figure 49: Page 1 of File Clerks' Test<sup>1</sup>

little or no experience as file clerks. In this fact we find a difference between this type of test and the other Specific Ability Tests discussed in this chapter. The others have no predictive value. This test like the Mental Alertness Test has predictive value, but unlike the Mental Alertness

<sup>1</sup>C. H. Stoelting & Co., Chicago, are the exclusive agents for this test.



## TEST I

On this page are some pairs of names and some pairs of numbers. If the two names or two numbers of a pair are *exactly the same*, write *S* on the dotted line between them; if they are *different*, write *D* between them.

The following samples are done correctly.

Samples: Young, L. F. ..S.. Young, L. F.  
Abbott, W. J. ..D.. Abbot, W. J.  
843 ..S.. 843  
625 ..D.. 652

- |     |                            |                      |
|-----|----------------------------|----------------------|
| 1.  | Bender, J. M. ....         | Bender, J. M.        |
| 2.  | Dredge, F. P. & Sons ..... | Dredge, F. D. & Sons |
| 3.  | Johnson, W. R. ....        | Johnston, W. R.      |
| 4.  | Quinley, A. Mc. ....       | Quigley, A. Mc.      |
| 5.  | Pilzeker Mfg. Co. ....     | Pilzeker Mfg. Co.    |
| 6.  | 430 .....                  | 430                  |
| 7.  | 5693 .....                 | 5963                 |
| 8.  | 38172 .....                | 38173                |
| 9.  | 78254 .....                | 78254                |
| 10. | 523962 .....               | 523692               |
| 11. | Arkwright, J. L. ....      | Arkwright, J. L.     |
| 12. | McClanahan, D. ....        | McClanahan, D.       |
| 13. | Galloway Co., Inc. ....    | Galloway Co., Inc.   |
| 14. | Martin-Southard Bros. .... | Martin-Southard Sons |
| 15. | Dilworth, Jos. L. ....     | Dilworth, Jos. L.    |
| 16. | 30602003 .....             | 30602003             |
| 17. | 83572694 .....             | 83572694             |
| 18. | 816922251 .....            | 81692251             |
| 19. | 51121793 .....             | 5122793              |
| 20. | 329506267 .....            | 329506267            |
| 21. | Farrell Sons Co. ....      | Farrel Sons Co.      |
| 22. | Marmion, Thos. A. ....     | Marmion, Thos. A.    |
| 23. | Brasbley, S. E. ....       | Braskley, S. E.      |
| 24. | Trexler, W. C. ....        | Trexler, W. C.       |
| 25. | Middleton, J. A. ....      | Middleton, J. A.     |
| 26. | 194086451 .....            | 194806451            |
| 27. | 315513797 .....            | 315513797            |
| 28. | 1249950677 .....           | 1249950677           |
| 29. | 3583110496 .....           | 3583110496           |
| 30. | 424455571 .....            | 424554571            |

Figure 50: Page 2 of File Clerks' Test

Test the File Clerk Test does reveal specific ability for specific work.

The use of both the Mental Alertness Test and the File Clerk Test for the selection of file clerks is desirable since:

1. The Mental Alertness Test *alone* gives a fairly good

## TEST II

- |                     |                     |
|---------------------|---------------------|
| 1. A to C inclusive | 5. N to Q inclusive |
| 2. D to F inclusive | 6. R to T inclusive |
| 3. G to K inclusive | 7. U to Z inclusive |
| 4. L to M inclusive |                     |

Take each name on this page and see what letter it begins with. If the first letter of the name is A, B, or C, write a figure 1 before the name; if it is D, E, or F, write a figure 2; if it is G, H, I, J, or K, write a figure 3; and so on, *according to the way the alphabet is divided at the top of this page.*

The following samples are done correctly.

Samples:     ..5...     Orville, J. L.  
                   ..3...     Green & Co.

Begin with the first name and work as fast as you can without making mistakes.

..... Baxter, J. H.	..... Chase, Wm. E.	..... Endicott Sons
..... Goring & Co.	..... Vanadium Trust Co.	..... Quality Print Co.
..... Alden Bros.	..... Phillips, C. W.	..... Rhoads, W. G.
..... Republic Sign Co.	..... Young, K.	..... Cairns, F. S.
..... Nolan & Green	..... Trimble, B. D.	..... MacCreery, Jas.
..... Kuppel, H. M.	..... Miffin Car Co.	..... Holton & Co.
..... McClenahan, S. J.	..... Disston, R. B.	..... Thompson Sons Co.
..... Williams, Hart & Co.	..... Reilley, J. J.	..... Prichard, B. L.
..... Endurance Tire Co.	..... Laughlin, D.	..... Franklin, E. R.
..... Saunders, A. D.	..... Universal Co.	..... Yeager Bros.
..... Huebsch, F. D.	..... Austin, John E.	..... Knight, N. F.
..... Omaha Sales Co.	..... Ideal Mfg. Co.	..... Quirk, Thos.
..... Fifth Avenue Cloak Co.	..... Vaughan, T. L.	..... Moffitt, W. T.

Figure 51: Page 3 of File Clerks' Test

indication of probable ability *to advance to more responsible work* of a clerical or minor executive nature.

2. The File Clerk Test *alone* gives a better indication of specific ability as a file clerk.

## TEST III

Below are 9 lists of 6 names each.

Look at List A first.

Write the figure 1 in the parenthesis ( ) before the name that would come *first in an alphabetical list*; the figure 2 before the name that would come next; 3 before the next; 4 before the next; 5 before the next, and 6 before the last.

Then do List B; then C; and so on.

Work-carefully. If you make a mistake, cross it out but do not take time to erase.

## LIST A

- ( ) S. G. Broadwell
- ( ) R. A. Blythe
- ( ) Busch & Sons
- ( ) J. E. Calhoun
- ( ) N. L. Burrows
- ( ) Chapmar Broa. Co.

## LIST B

- ( ) J. M. Yearsley
- ( ) H. B. Vincent
- ( ) Walker & Co.
- ( ) G. R. Ulrich
- ( ) Wm. Ziegler
- ( ) S. D. Wadsworth

## LIST C

- ( ) M. E. Keene
- ( ) Wm. Shaffer
- ( ) A. E. Bassett
- ( ) L. F. Jarvia
- ( ) T. L. Quimby
- ( ) Gilmore Sons Co.

## LIST D

- ( ) Merchants Co.
- ( ) R. C. Otter
- ( ) D. W. Ridgway
- ( ) F. G. Mulraney
- ( ) G. N. Merrill
- ( ) Parsons & Bros.

## LIST E

- ( ) W. P. Boardman
- ( ) Bliss Bros.
- ( ) A. L. Bonaparte
- ( ) N. F. Boarder
- ( ) E. V. Brennan
- ( ) B. K. Blakely

## LIST F

- ( ) J. S. McAlpines
- ( ) H. K. Robertson
- ( ) McMahon & Sons
- ( ) A. W. Harrington
- ( ) Chas. Uhlman
- ( ) L. H. Leedom

## LIST G

- ( ) Talbot Mfg. Co.
- ( ) Wingfield & Jones
- ( ) Talking Machine Co.
- ( ) Chas. E. Sproute
- ( ) A. F. Ulrich
- ( ) R. L. Thacker

## LIST H

- ( ) Uhl Broe.
- ( ) S. W. Price
- ( ) N. R. Wright
- ( ) Ragan Sons Co.
- ( ) L. A. Seabrook
- ( ) Wm. E. Quarry

## LIST I

- ( ) A. A. Klinger
- ( ) Holmes Steel Co.
- ( ) Jas. E. Kling
- ( ) F. L. Linderman
- ( ) Jamison Bros.
- ( ) Geo. Lindley

Figure 52: Page 4 of File Clerks' Test

3. Both tests should be used in selecting file clerks and should be supplemented by all other possible information concerning the applicant or employee in order that proper consideration may be given to all of the factors involved.

There is some probability that this test will indicate some-

## TEST IV

Below are 9 lists of 6 numbers each.

Look at List A first.

Write the figure 1 in the parenthesis ( ) before the *smallest number*; the figure 2 before the next smallest; 3 before the next; 4 before the next; 5 before the next; and 6 before the largest.

Then do List B; then C; and so on.

Work carefully. If you make a mistake, cross it out but do not take time to erase.

## LIST A.

( ) 7386  
( ) 7735  
( ) 7623  
( ) 7700  
( ) 7752  
( ) 7738

## LIST B.

( ) 10801  
( ) 18002  
( ) 12401  
( ) 10667  
( ) 13120  
( ) 11024

## LIST C.

( ) 321120  
( ) 46652  
( ) 348622  
( ) 322012  
( ) 350101  
( ) 72414

## LIST D.

( ) 602786  
( ) 602198  
( ) 603124  
( ) 602201  
( ) 66008  
( ) 602840

## LIST E.

( ) 100769  
( ) 141202  
( ) 146201  
( ) 138862  
( ) 146211  
( ) 111042

## LIST F.

( ) 998899  
( ) 989598  
( ) 988899  
( ) 998988  
( ) 988988  
( ) 999988

## LIST G.

( ) 100201  
( ) 100086  
( ) 201032  
( ) 100101  
( ) 201122  
( ) 101054

## LIST H.

( ) 537073  
( ) 573705  
( ) 537573  
( ) 577375  
( ) 570537  
( ) 537075

## LIST I.

( ) 132456  
( ) 156432  
( ) 123456  
( ) 134562  
( ) 145632  
( ) 134526

Figure 53: Page 5 of File Clerks' Test

thing of the kind of file work the individual will do best. But this fact should be established in the experience of each company using it, for the filing problems of one company usually vary somewhat in detail from those of another.

One fact is certain, however, when the time comes that industry finds it imperative to know about the existing spe-

## TEST V

On this page there are a number of sentences. After each sentence there are five words in capitals. Decide which of these five topics or subjects the sentence deals with. Then underline the one of these five words that tells what the sentence is about.

The following sample is done correctly.

Sample: The B. & E. Railroad carries freight only.

MANUFACTURE    TRANSPORTATION    FINANCE    AGRICULTURE    MINING

Begin with number one and work as fast as you can without making mistakes.

1. The process of making steel rails is carried on in this plant.  
ELECTRICITY    MANUFACTURE    FINANCE    LAW    MINING
2. A special meeting of the Board of Directors was held to consider a new bond issue.  
POLITICS    LAW    TRANSPORTATION    FINANCE    CONSTRUCTION
3. The shipment of wheat by boat was double that by rail from Low Harbor.  
MANUFACTURE    FINANCE    TRANSPORTATION    MINING    PHOTOGRAPHY
4. The Vilsack Building was completed in one year.  
CONSTRUCTION    AGRICULTURE    ELECTRICITY    PRINTING    MINING
5. Pictures of rapidly moving objects are taken with Graflex cameras.  
PRINTING    ATHLETICS    CONSTRUCTION    AGRICULTURE    PHOTOGRAPHY
6. Sunday theatrical performances are prohibited in Philadelphia.  
AGRICULTURE    TRANSPORTATION    ATHLETICS    LAW    PHOTOGRAPHY
7. The linotype is used to set up type for newspapers.  
POLITICS    ELECTRICITY    ATHLETICS    TRANSPORTATION    PRINTING
8. Party candidates are often selected by a small group of party leaders.  
PRINTING    FINANCE    POLITICS    ATHLETICS    MANUFACTURE
9. Motor driven ploughs are used on the large farms of the West.  
MANUFACTURE    MINING    PHOTOGRAPHY    AGRICULTURE    POLITICS
10. Chemical laboratories are maintained in connection with the plants of the Concordia Steel Co.  
LAW    MANUFACTURE    PRINTING    ELECTRICITY    FINANCE
11. Coal production has been greatly increased by the use of labor saving machinery.  
POLITICS    LAW    MINING    PRINTING    CONSTRUCTION
12. The voltage of the lighting system in the Milla Building is 110.  
PRINTING    LAW    ELECTRICITY    PHOTOGRAPHY    TRANSPORTATION
13. Lime, sand, cement and water are mixed to make mortar for bricklaying.  
TRANSPORTATION    AGRICULTURE    ATHLETICS    CONSTRUCTION    POLITICS
14. The three process colors used in job press work are red, yellow, and blue.  
PRINTING    MINING    FINANCE    LAW    ATHLETICS
15. Counterfeiting of money is prohibited by the National Government.  
TRANSPORTATION    MINING    ATHLETICS    PHOTOGRAPHY    LAW
16. The breast stroke is used by some expert swimmers.  
MANUFACTURE    ELECTRICITY    ATHLETICS    POLITICS    CONSTRUCTION
17. The Delphia Mine is being worked two miles from the main shaft.  
MANUFACTURE    MINING    CONSTRUCTION    FINANCE    AGRICULTURE

(Go to the next page)

Figure 54: Page 6 of File Clerks' Test

cific abilities of workers and their potential specific abilities, it will find tests of the type described herein of very real service. In many instances individual companies are using one or more kinds of such tests now with advantage. At all times care must be exercised not to rely too much on any

18. Improper developing of prints causes the pictures to be hazy.  
FINANCE AGRICULTURE ATHLETICS PHOTOGRAPHY ELECTRICITY
19. The wires in a telephone cable are insulated by means of paper.  
POLITICS MINING FINANCE ELECTRICITY PRINTING
20. Billions of dollars were loaned to European Countries during the war.  
MANUFACTURE AGRICULTURE FINANCE ELECTRICITY CONSTRUCTION
21. Football is the most popular game in American Colleges.  
LAW ATHLETICS CONSTRUCTION PHOTOGRAPHY FINANCE
22. Republicans and Democrats have opposed each other on the question of tariff.  
AGRICULTURE MANUFACTURE TRANSPORTATION PRINTING POLITICS
23. Five car lines run from the city to the seashore.  
POLITICS LAW AGRICULTURE TRANSPORTATION PHOTOGRAPHY
24. By means of irrigation thousands of acres of land have been made into farms.  
MANUFACTURE TRANSPORTATION AGRICULTURE ATHLETICS MINING
25. A rectifier is used in a lighting circuit to change alternating current to direct current.  
FINANCE CONSTRUCTION ELECTRICITY MINING PRINTING

### TEST VI

Answer the questions following each of the paragraphs below. Your answers are to be based on the paragraph. Read the paragraph as often as you need to.

- (1) Four hundred and fifty years ago the people of Western Europe were getting silks, perfumes and spices from Southeastern Asia, then called the Indies. But the Turks were conquering the countries across which the goods were carried, and it seemed likely that the trade would be stopped.
  1. Name one of the things the people of Western Europe were obtaining.  
Answer .....
  2. What was the country called from which the goods were gotten?  
Answer .....
  3. How long ago does the paragraph say this trade took place? Answer .....
  4. What people seemed likely to interfere with the trade? Answer .....
  5. What part of Asia was called the Indies at that time? Answer .....
- (2) On March 15th, 400 representatives of builders, real estate financiers, building material dealers, and labor union officials attended a meeting called by the Mayor in the City Hall to discuss building plans to solve the present housing shortage.
  1. Who called the meeting? Answer .....
  2. What kind of plans were discussed? Answer .....
  3. Where was the meeting held? Answer .....
  4. On what date did it take place? Answer .....
  5. How many people attended the meeting? Answer .....

(Go to the next page)

Figure 55: Page 7 of File Clerks' Test

single instrument of this sort but to consider together all facts yielded by various methods of ascertaining the facts. For in all such cases judgments are being made regarding human beings, of whose intricate properties as yet we know very little indeed.

- (3) The Carnegie Corporation of New York gave five million dollars to the National Academy of Sciences and the National Research Council. Part of this money will be devoted to the erection of a building in Washington and the remainder will be held as an endowment.
1. What corporation has made the gift? *Answer* .....
  2. What is the amount of the gift? *Answer* .....
  3. For what purpose will the money be used that is not spent in building?  
*Answer* .....
  4. To how many organizations was the money given? *Answer* .....
  5. In what city is the building to be erected? *Answer* .....
- (4) The Chamber of Commerce of Philadelphia asked the City Council to repeal the Daylight Saving Ordinance which was to go into effect in the city on March 28th, on the ground that it would cause much confusion. The surrounding towns would still conform to standard time.
1. What body was asked to repeal the Daylight Saving Ordinance?  
*Answer* .....
  2. On what date was the ordinance to become operative? *Answer* .....
  3. What kind of time would be used by nearby towns? *Answer* .....
  4. What organization requested a repeal of the Ordinance?  
*Answer* .....
  5. What city does the law deal with? *Answer* .....
- (5) Beginning February 18th, New York City provided warm lunches for school children in seven schools. Luncheons which will include soup or cocoa, a substantial dish, a dessert, and a cake or sweet, will be served for ten cents. If children cannot afford to pay for their lunches, it is arranged to feed them without charge.
1. In how many schools are lunches provided? *Answer* .....
  2. How many things are included in one person's lunch? *Answer* .....
  3. How much will be charged in the cases of children who cannot afford to pay?  
*Answer* .....
  4. What is the regular price of the lunch? *Answer* .....
  5. What city does the paragraph deal with? *Answer* .....
- (6) At the fifth convention of the Planter's Association, Professor Sterling stated that the actual volume of business in the United States increased only 12% from 1913 to 1919. Mr. Franklin endorsed Professor Sterling's statement.
1. How much is the volume of business said to have increased?  
*Answer* .....
  2. At the meeting of what body was the statement made?  
*Answer* .....
  3. How many conventions has the Association had before this one?  
*Answer* .....
  4. Who endorsed the statement made? *Answer* .....
  5. Over how long a period was the increase in business figured?  
*Answer* .....

Figure 56: Page 8 of File Clerks' Test

In the personnel work of most companies, it is a question whether Tests for Specific Ability will fill a very great need in the hiring function. In the majority of cases the principle is being followed of employing persons who are not especially skilled in specific kinds of work. Such employees are

taken into the organization and in the course of time are trained in their specific tasks. They, like their fellows, rely upon the Company's policy of "promoting from within" and hope to step up to more responsible positions as the opportunity offers and as they demonstrate their ability to advance.

Such training, with few exceptions, is a sort of hit-or-miss proposition at present. When industry really discovers the wastefulness of the present practice in training, there will be a careful analysis of specific occupations, a careful record made of specific individual abilities, and a carefully designed training procedure for fitting the individual to take the next step in his industrial progress. When that time comes, such tests as are described in this chapter and others will be increasingly utilized as an inherent part of the personnel procedure.

A carefully worked out File Clerks' Test appears in Figures 49, 50, 51, 52, 53, 54, 55, and 56.

The test can be given individually or to groups. The time limits are as follows:

Test I.....	2 Minutes
Test II.....	2 Minutes
Test III.....	3 Minutes
Test IV.....	3 Minutes
Test V.....	1½ Minutes
Test VI.....	3½ Minutes
Total time all tests .....	15 Minutes

The score in Test I is the number of items completed minus two times the number wrong. The score in Test II is the number of correct answers. The score in Tests III and IV is the number of lists entirely correct, multiplied by three. The score in Test V is the number of correct answers. The score in Test VI is the number of items correct. The total score for the test is the sum of the scores for the six parts.

To facilitate the clerical work, scoring is ordinarily done



by a stencil as in the case of the Mental Alertness Test described in Chapter XIV.

The purpose of this chapter is to explain to the student different kinds of tests for special ability. It is not intended to be a comprehensive view of the field—far from it—but rather a suggestion of the opportunities for constructive research in personnel procedure. The principles which underlie the several tests described in this chapter are applicable to all kinds of work, although the Personnel Manager at times may be unable to apply them through “local” difficulties.

Where, for instance, the person’s efficiency in his work is governed largely by possible machine speed or supply of material, the Personnel Manager is immediately confronted with problems in the development of such tests as these. But these facts do not detract from the great possibilities which lie in research in this field. Rather they challenge us to bring our best efforts to bear on the task.

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## XVII

### CONSTRUCTING THE PERSONNEL CONTROL CHART

Need for comprehensive view of the personnel situation in each company. The scope of the Personnel Control Chart. Salary Control a matter of judgment, not formula. Construction of the Chart. The use of the color code. "The Unusual Situation" an opportunity for constructive adjustment. Budgetary control.

THE several instruments of personnel administration which we have discussed in preceding chapters have each a specific purpose to achieve. The function of the Occupational Description, for instance, is to yield to the Personnel Manager explicit and pertinent information about the work in each position, its characteristics and requirements. The Occupational Description is the instrument which, primarily, furnishes data with reference to the *Opportunities* in the organization—those phases of Opportunity which have to do with self-expression and the exercise of various Capacities and the satisfaction of various Interests. The Promotional Chart which is constructed from the information contained in the Occupational Descriptions summarizes for the organization as a whole that information regarding Opportunities which is restricted to opportunities *for advancement*.

#### NEED FOR A COMPREHENSIVE VIEW OF THE PERSONNEL SITUATION

The Application Blank brings to the Personnel Manager that information about the applicant which is of a more obvious nature—his history, experience, education, and so forth. This information is usually elaborated by interview, by tests of various kinds and by the use of Rating Scales,

and this detailed information about the employee is recorded on his Qualification Card. The file of Qualification Cards is, consequently, the index of the Capacities and Interests which exist in the organization—truly a labor audit.

To a degree not possible without them, the Personnel Manager enjoys through these two major records a comprehensive knowledge of the personnel situation within his

	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52
Manager																		x				
Assistant Manager												x										
Chief Clerk								x														
Secretary						x																
Stenographer				x	x																	
Traffic Clerk			x																			
File Clerk		x																				
Typist		x	x	x																		
Messenger		x	x																			
Office Boy	x	x																				

Figure 57: Typical Salary Chart

organization. Yet even with these instruments it is difficult for him to visualize the personnel situation in toto and to appraise the significance of each worker-in-his-work unit in it. Thus there has become apparent the need for an instrument which will summarize the entire personnel situation in this way in much the same manner in which the Promotional Chart visualizes in a glance the promotional opportunities which are expressed specifically in the individual Occupational Descriptions. The Personnel Control Chart serves this purpose. This chart is the result of a process of evolution which began with a small coordinate chart showing the salaries paid in different occupations. Everyone is, of course, familiar with this type of chart. It is exemplified in Figure 57. The use of this form of Salary

Chart suggested larger fields of usefulness than that for which it was originally devised. It became apparent that this form of chart could be utilized to express those intricate and various relationships of job to job, worker to worker and worker to job, which comprise the personnel situation within a company.

#### THE SCOPE OF THE PERSONNEL CONTROL CHART

The Personnel Control Chart has thus come to be an instrument which shows:

(a) The value of each occupation in the organization as expressed by a salary range suggested by a conscious evaluation of such factors as:

- (1) Education required
- (2) The extent and kind of experience required
- (3) The degree to which good judgment is essential
- (4) The degree to which accuracy in one or more of its many forms is required
- (5) The degree and kind of supervisory ability required
- (6) Physical qualities such as Strength, Eye-sight, Agility required, and so forth
- (7) The kind of working conditions prevailing in the work
- (8) The difficulty of the work and the length of time required to become proficient in it
- (9) The extent to which constant output is essential to the operation of the organization as a whole
- (10) The degree of organizing and planning ability required
- (11) The degree of initiative required

(b) The salaries actually paid the individuals within each occupation

(c) The degree in which the labor cost of performing the work in each occupation is normal, sub-normal, or too high

(d) The individuals within each occupation who are satisfactorily adjusted to their work and who in consequence contribute each to a well-balanced worker-in-his-work unit

(e) The individuals within each occupation who apparently require action of one kind or another on the part of the management

(1) Those who are showing signs of outgrowing their work or who possess Capacities and Interests outbalancing the Opportunities of the work

(2) Those who are failing to make good or who seemingly lack the Capacities and Interests enabling them to measure up to the Opportunities offered in the occupation

(f) The relation between the salary paid to workers in the same and allied occupations; this information is essential to the maintenance of that degree of fairness in the salary scale which is based upon a consideration both of the value of the occupation itself and the value of the individual's performance within his occupation.

Let us consider the manner in which the Personnel Control Chart fulfils these purposes.

At the outset it should be recognized that there is no mathematical formula for determining salary ranges. Any alleged formula which attempts to appraise the factors in an occupation and arrive by computation at an evaluation of that occupation is certain to prove misleading. There are too many elements of an abstract nature to be considered.

#### SALARY CONTROL A MATTER OF JUDGMENT, NOT FORMULA

Judgment must be used in determining the minima and maxima salaries for the various occupations. But through

the use of the Occupational Description, it is no longer necessary for this judgment to be a matter of guesswork. Although mathematical accuracy is impossible, the facts are now in hand to make judgment good and to increase the probability of wise decisions. It has been pointed out that the Occupational Description can be so constructed as to reveal approximately the degree to which certain important factors exist in each occupation. These degrees are usually indicated on the face of the Occupational Description by a number or letter as explained on page 154. Each of these letters sounds a warning that the quality it represents exists in the occupation in greater or less degree. The Occupational Description reproduced on page 150 shows these letters in the upper left-hand corner as utilized by one company. Thus, when the Occupational Description is completed, it is customary practice for the Personnel Manager to visualize the factors in the occupation as suggested by the key letters and explained in further detail by the *text* of the Occupational Description. If necessary, he confirms them in personal interview with the executives and foremen in charge. With this information, he is in a position to set tentative salary limits for each occupation by evaluating the factors themselves and comparing them with the corresponding factors in other occupations, the salary limits for which have already been determined.

When this has been done, it is customary practice for him to discuss the proposed limits with the executives in charge of the work and those who otherwise are in a position to express intelligent opinions.

#### CONSTRUCTION OF THE CHART

When, as a result of these consultations, the tentative minima and maxima have been determined in the case of an occupation, colored pins are then inserted on the chart opposite the name and symbol of the occupation to indicate the limits of salary range. A cabinet has been contrived

which lends itself admirably to the development of Personnel Control Charts. The charts themselves are mounted on heavy pasteboard and cut into horizontal strips. One chart will contain as many as 30 such strips and is held in a shal-

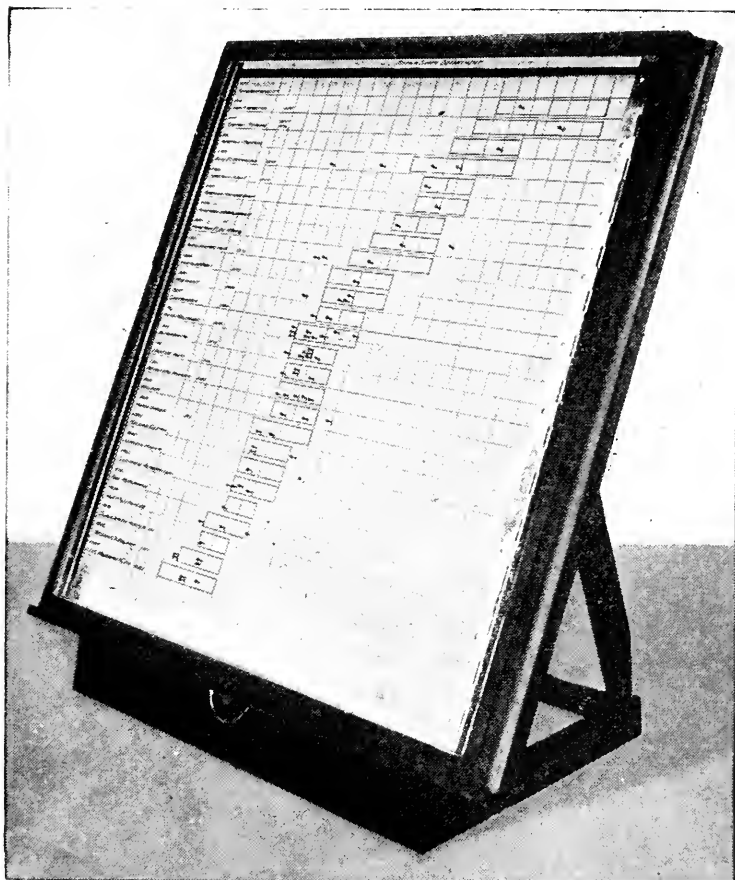


Figure 58: Personnel Control Chart with its carrying case placed on easel

low drawer (see Figure 58) which in turn is kept in a cabinet similar to that appearing in Figure 59. These strips are removable and interchangeable. The advantage of this is ob-

vious when it is considered that in the construction and use of the Personnel Control Chart, it will be desirable frequently to change this range of salary for a position, to outlaw the limits originally prevailing, to rearrange the occupations according to occupational value or salary progression. It is possible in short to make changes and revisions with a minimum of effort and without making necessary the reconstruction of the chart as a whole.

#### USE OF COLOR CODE

Each horizontal strip is utilized to indicate the facts within an occupation. At the left appears the name and symbol of the occupation and the key letters indicating the

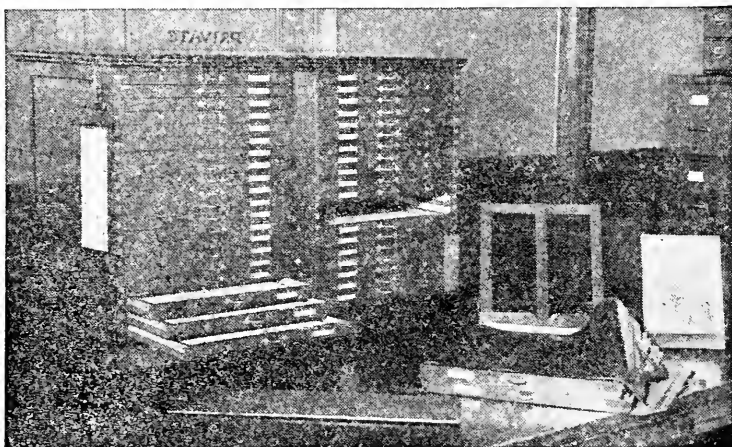


Figure 59: The cabinet of Personnel Control Charts

approximate degree to which the various factors or importance enter into it, as they appear in the Occupational Description. Then in the columns to the right are shown the minima and maxima, either by colored pins as explained above or by an inked box as shown by the reproduction of the chart in Figure 60.



Chief C

Group  
Teleph

Outside

Counte

Group

Genera

Teleph

Secret

Routin

Compl

Statist

Steno

Corre

Inform

Data

Dict

M

**Fold  
Out**

Figure 60: Personnel Con departmentally

by one company

The next step is that of entering colored pins, one for each employee. One color is ordinarily used to indicate men and boys, another to indicate women and girls. These are inserted on the strip opposite the name and code number of the occupation at the proper places under the salary figures representing the salaries being paid to the individuals. Different institutions, of course, have their own color codes; let us, however, think of red as the color code used for male employees and green as the color used for female employees.

Now it is probable that a number of these pins will fall above the maxima and below the minima. It is customary to replace these pins by pins of other colors which will serve to attract the attention of the Personnel Manager, for each such pin represents an abnormal situation which must either be justified or corrected.

The red and green pins, as explained above, will indicate men and women who seem to be wholesomely adjusted to their work. White and gray pins respectively may be substituted for those red and green pins which appear above the maxima, and blue and brown pins may be substituted respectively for those which fall below the minima. Thus the white, gray, blue, and brown pins become signals calling for conscious action on the part of the Personnel Manager.

#### THE UNUSUAL SITUATION—AN OPPORTUNITY FOR CONSTRUCTIVE ADJUSTMENT

A white or gray pin indicates an improper balance. But the situation involved may be justified by the facts surrounding it and if it is so justified on analysis, the red or green pin is properly restored. It may be perfectly proper in a certain case for a man or woman to be receiving a salary higher than that indicated as the maximum for the job on which the person is engaged. He may be receiving more than the maximum by virtue of length of service, or good

moral influence, or extra duties, but good practice demands that it be frankly recognized that the individual is receiving more than the maximum salary, not for his value in the work itself, but for a contribution of personal efforts which he makes outside the performance of his regular duties. On the other hand, certain of these white and gray pins may indicate an unbalanced wage situation. This is found frequently to be the case through change in the work or in the worker. Or through unusual aggressiveness on the part of the employee or his superior, a salary may have unthinkingly been granted to that individual in excess of the value of the services which he is rendering.

TABLE 14  
TYPICAL COLOR CODE FOR PERSONNEL CONTROL CHART

	Female Employee	Male Employee
Wholesome adjustment to work—in terms of Capacities, Interests, and Opportunities	Red pin	Green pin
Lack of balance—Capacities and Interests outweigh Opportunities. Worker has outgrown his job. Probability of dissatisfaction, restlessness. High cost of getting the work done	White pin	Grey pin
Lack of balance—Opportunities outweigh Capacities and Interests. Worker incapable of filling job effectively. Probability of inefficiency, loss and waste. High cost of getting the work done	Blue pin	Brown pin

In like manner, a blue or a brown pin indicates an improper balance, but of opposite kind. Unless there is some unusual factor in the situation the pin of an employee fall-

ing below the minimum for his occupation will be a blue or a brown pin. Where a pin does fall below the minimum, one of two conditions must naturally be true: either it is recognized that the employee is underpaid and the pin moved up to at least the minimum for the position (and its color changed to red or green), or investigation shows that the individual is a learner or a part-pensioner or part-time worker. If this latter alternative is the case, there is obviously "an unusual factor"; the below minimum rate is found to be legitimate and the color of the pin is restored, *in its unchanged position*, to red or green.

Now frequently, employees whose pins lie within the salary range for their occupations may require action of one kind or another on the part of the Personnel Manager. The worker may lack the proper Capacities for the work, he may lack the proper Interests. He may entertain a grudge or feel that he is not being properly compensated for his efforts. Any one of many different kinds of maladjustments such as these may be undermining his value as an employee in general and as a worker in his specific occupation or in his specific department in particular. Such facts as these are revealed, at times, through the use of the Rating Scale; the employee is shown to be lacking in certain qualities which the Occupational Description pronounces are important in the work. They are shown in the products of his work. They are reported in supplementary memoranda from the Department Head or explained personally by him in conversation. The channels are many, in fact, through which information regarding maladjustments of these kinds flows to the Personnel Manager. When instances of this kind become known to the Personnel Manager, he sees that the red and green pins are replaced by blue or brown pins until he has been able to effect the proper readjustment in each case (whatever it may be). At that time, the original pins are restored.

Similarly, when knowledge comes to him of an employee who seems to possess unusual qualities, who possesses fine

potentialities, whose abilities are being wasted in his present work—when such an individual is discovered through the channels suggested above, his red or green pin in the chart is changed to white or grey until the readjustment is made which establishes again a proper balance between his Capacities and Interests and the Opportunities in his work.

Reference has been made above to the median line which is drawn midway between the minimum and maximum. This median line is utilized by some organizations to arrange their occupations in logical progression. This undoubtedly was its original purpose. It soon became evident, however, that the median line served a more valuable purpose in personnel administration.

#### BUDGETARY CONTROL

It offers a very effective check, in short, upon the expense to the organization involved in the performance of each operation. If the majority of pins representing employees are above the median line, other things equal, it is costing too much to have that work done. In this case the management will naturally look with reluctance upon any recommendation to increase the salaries paid for the performance of that work, except in individual cases where *unusually* sound reasons exist for such increase. Conversely, where the majority of pins representing employees fall below the median line, it is apparently costing less to have the work done than has been estimated as normal and proper. In this case, when evidence of individual effectiveness is offered, the management is justified in increasing the salaries of the employees with less reluctance.

Yet this is not necessarily a foregone conclusion. The fact that the majority of pins fall below the median line may indicate that the work is being done too cheaply and that efficiency is really being sacrificed. Here again is an opportunity for the exercise of judgment. The Personnel Manager will analyze carefully the situation indicated by this rush of pins to the foot in order to ascertain its exact

significance and will bring to bear upon the situation so revealed the remedy which such an analysis may show to be appropriate.

It is obvious from this description of the construction of the Personnel Control Chart that like all the other instruments described, it is in itself no automatic agency of personnel adjustment, but merely an instrument to reveal the facts upon which good judgment and wise action may be based. It is undoubtedly true that many of the maladjustments and irregularities in the personnel situation within an organization are the product not of mismanagement but of ignorance of the facts. The executive or Personnel Manager who assumes that it is humanly possible to possess all such facts through personal observation is unconsciously hampering his own efficiency and opening the door wide to endless causes of inefficiency and discontent. On the other hand, the executive or Personnel Manager who recognizes his natural limitations in this respect and who consequently constructs and utilizes such instruments as these to reveal the facts (facts which would otherwise pass unnoticed) is in a far more advantageous position to attain true efficiency in his organization or in his department by correcting those maladjustments of Capacities, Interests, and Opportunities, and inequalities in pay, which make for inefficiency and discontent.

In coming chapters the use of the Personnel Control Chart will be explained in discovering the weak and strong spots in the organization and in maintaining an adequate control of salary ranges and salary rates.

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## XVIII

### USE OF INSTRUMENTS AND METHODS IN SELECTION

The importance and significance of selection. Two primary sources of labor supply. The authority for requisitions. The technique of the files. The interview as a prerequisite. The attitude of the "robbed" department head. Cultivating the morale factor. Formula vs. judgment. Interpretation of references. Physical factors.

THERE is a certain type of business man who thinks of personnel administration in terms only of *selection*. His idea of the Personnel Department is that of an employing department merely and his conception of its function is that of finding and securing workers. In our chapter on Selection, consequently, we shall endeavor to guard against this overemphasis, yet in no way to detract from the proper importance of selection as one of the primary functions of personnel administration.

Personnel administration has as its objective the adjustment of workers to their work in such a way that the Capacities and Interests of the workers and Opportunities in their work will be balanced and coordinated, thus making for the economic and social effectiveness of each. Obviously, selection plays a tremendous part in this enterprise. We must choose workers for each occupation who have the specific Capacities and Interests required in it. *But the task of the Personnel Manager is only begun when the worker has been selected and put on the job.* The need then arises for so cultivating and developing the worker through leadership, incentive, training, and other avenues of influence as to develop further and further his effectiveness in his work and consequently to increase his own sense of achievement and his own happiness.



In coming chapters we shall discuss in greater detail such aspects of management as supervision, furnishing incentive, training, and so forth. Before we proceed to a consideration of those aspects, however, it is natural that we should consider first the problems which arise in the *selection* of the worker.

#### THE IMPORTANCE AND SIGNIFICANCE OF SELECTION

Nothing which we have said in the foregoing paragraphs should be construed as minimizing the importance of selection in personnel administration. Their purpose is merely to guard against a narrow interpretation of the field of employment management. As a matter of fact, selection is of primary importance and the success of these other aspects of personnel administration must necessarily depend in large measure upon the success with which selection is achieved.

Selection is a process which is continuously going on. It has already been pointed out that the personnel situation within any company is in a permanently fluid state—or rather plastic state. Changes are continuously taking place. Employees are leaving, vacancies are occurring. Such vacancies must be filled. If the work of the organization is to go on, these vacancies must be filled with intelligent consideration of their requirements and of the Opportunities, and of the Capacities and Interests of the persons who are available.

Selection is constantly going on furthermore with reference to *prospective* vacancies. Especially with reference to more important positions, personnel management must look ahead and anticipate those vacancies which will probably occur in the future and arrange for the development of individuals for promotion to those positions. This naturally brings us to a consideration of training as a function of personnel management and to a consideration of *selection for training*.

By virtue of the processes as discussed in previous chapters, let us assume that the instruments and methods necessary in intelligent selection have now been devised. Principal among these are the Occupational Description, Application Blank, Qualification Card, Rating Scales, Mental Alertness Tests, and Special Ability Tests.

#### TWO SOURCES OF SUPPLY OF LABOR

It is apparent that two primary sources of supply of personnel are available to every business organization large and small. The first is the business world outside the walls of the company itself—the local market, the outside sources of supply. The second is numerically much more restricted, but of proportionately greater value; namely, the personnel already within the organization.

The outside source of supply is naturally the source from which we draw most, if not all, of the persons needed to fill rank and file positions, those positions which appear at the foot of the Promotional Chart. This seems to be the logical point of departure in our discussion of selection. It would seem that the Personnel Manager's first task is to develop the methods of selecting from this vast source of supply, those persons who are qualified for these lower rank positions, yet who possess the personal qualifications which will enable them to grow more and more valuable in the service of the company, to advance to positions of larger responsibility and reward.

In an earlier chapter we have discussed the various avenues through which employees from outside can be procured. Provided a company has developed prestige in a community as a good place to work, and provided, of course, that the community is of such a size and nature that there is an adequate supply of labor, little difficulty should be encountered in maintaining a record of an adequate number of persons from whom individuals can be selected to fill vacancies within the organization. If the company has been

successful in establishing this kind of prestige the applicants at the employment office should constitute an adequate source of supply. As needed, of course, this supply can be stimulated by one or more of the methods discussed in Chapter V. Consequently, the file of Application Blanks in the employment department should provide a record of the persons in the community desirous of securing employment with the company, persons who in all probability are available.

In Chapter XI we have described the Application Blank and the method of tabbing frequently employed to indicate the blanks of those persons who should be considered when a vacancy of a certain kind occurs. In the same manner in which the file of Application Blanks furnishes valuable information about persons who are available for employment, the file of Qualification Cards provides information about the persons within the organization who may be qualified for transfer or promotion to the vacant position. The Personnel Manager has in these two files a condensed record of the personnel immediately available for filling vacancies within the organization. When these two files have been created and arrangements made for their proper maintenance, the Personnel Department is in a position to supply department heads and operating chiefs with needed personnel with a degree of success which would otherwise be quite impossible.

#### THE AUTHORITY FOR REQUISITIONS

In organizations in which the Personnel Manager has been given an unusual degree of *line* authority, that executive exercises direct authority with reference to the needs of the various departments for new personnel. He decides what personnel is needed. This arrangement has its advocates. It is generally regarded as better organization, however, for this immediate authority as to the needs of the departments for new personnel to be vested in the depart-

ment heads rather than in the Personnel Manager. Where this is the set-up, the Personnel Manager, of course, refrains from direct action but exercises staff authority with reference to the general personnel needs of the various departments. He acts in an advisory capacity with reference to departmental needs but abstains wherever possible from interfering with reference to specific requests for labor. The reasons for this are obvious. It is generally thought unwise to restrict the departmental executives with reference to any phase of the management of his department to such an extent that he regards it as "interference." If he is qualified as head of the department, he is capable of administering such line functions adequately. If this line authority is transferred to an executive outside the department such as the Personnel Manager, a situation is inevitably created in which the department manager is held responsible for results without enjoying corresponding authority. This usually hampers him in a degree quite injurious to the interests of efficient operation, frequently arouses an antagonistic attitude on his part and at least furnishes the opportunity for him to pass the buck when results in his department are not forthcoming. Before such a transfer of authority is made, there is need to educate the department head and foreman to a truer conception of the intangible factors of leadership which properly lie in his job.

These facts are generally recognized. The Employment Department, consequently, is usually governed by requisitions from the department heads with respect to the number and kind of persons needed. These requisitions are, of course, scrutinized by the Personnel Manager. He seldom challenges them, but if he concludes from a continued scrutiny of the requisitions received from a department that too many people are asked for, he then proceeds in his capacity as a staff official to consult with the executive with reference to the ways and means of getting the work out with fewer people.

The Requisition Blank was probably the first personnel form to be created. When employing offices were first established, penciled memoranda served to indicate the needs of the various departments for new personnel, but these penciled memoranda soon gave way to printed forms on which the department heads could indicate such facts as:

- (a) The number of persons wanted
- (b) The experience they should have
- (c) The education they should have
- (d) The skill they should have
- (e) The personal qualities they should have
- (f) The date they should report
- (g) The pay they should receive, and so forth

This is obviously before the day of the Occupational Description. The sample of such a Requisition Blank is illustrated in Figure 61.

With the development of the Occupational Descriptions, however, there is now no need for this great detail on the Requisition Blank. All the facts with reference to the qualification, experience, education, and so forth, of the persons needed have already been established and recorded on the Occupational Descriptions, copies of which are in the hands both of the departmental executives and the personnel department. Following the construction of the Occupational Description, it became necessary for the departmental head merely to indicate the name and symbol of the position, the number of persons wanted, and the date they were to report. Such a requisition form is illustrated in Figure 62.

It is usually the practice for the Personnel Department to record the requisitions thus received in a way to reveal at a glance the personnel needs of the organization as a whole. A typical Requisition Summary is shown in Figure 63. This form indicates at a glance the positions open throughout the organization and the success of the Personnel Department in filling such vacancies with proper promptness.

<b>To the Employment Department:</b>	
Please procure for the _____ Department	
_____ persons to report _____, for the	
position of _____. Qualifications desired:	
Sex	_____
Age	_____
Height, weight, etc.	_____
	_____
Education	_____
	_____
Experience	_____
	_____
Skill	_____
	_____
Personal Qualities	_____
	_____
Salary \$	_____
Date	_____
Signed	_____
	Department Manager

Figure 61: Sample Requisition Blank

It is always desirable that the cooperation of the department heads be secured in forwarding requisitions to the Personnel Department as far in advance as possible. Especially in times of labor shortage, the Personnel Department has a difficult job on its hands to find and secure persons who are fitted for the work. The departmental executive is frequently unappreciative of this difficulty usually confronting the Personnel Department.

## THE TECHNIQUE OF THE FILES

When a requisition is received from the department head, reference is made at once to the Occupational Description for the position in which the vacancy exists. The tendency to rely upon memory to reveal the kind of person needed for the job is consciously opposed. Memory at best is a faulty record. The Personnel Manager or his assistant thus refreshes his memory as to the kind of person needed and ascertains from the Occupational Description or from the Promotional Chart if there is any lower position in the organization which naturally leads up to the position in which the vacancy exists. If there are one or more lower positions of this character, recourse is had at once to the file of Qualification Cards and the cards of those persons occupying these lower positions are identified by tab and lifted from the file for personal scrutiny.

<b>To The Personnel Department:</b>	
Please procure for the _____ Department	
_____ persons, to report _____ for the	
position of _____, Symbol _____	
Signed _____	
Department Manager	
Date _____	

Figure 62: Sample Requisition Form

In like manner, the requirements of the vacant position are carefully studied, the tabs are again utilized, to discover the Qualification Cards of other persons in the organization who possess the desired Capacities and Interests and to whom the position itself represents promotion or at

Date Received	From Department	Position		Number Persons	Date Desired	Date Filled
		Name	Symbol			

Figure 63: Summary Form for Requisitions

least a horizontal transfer. These cards are set aside with the others for more careful scrutiny.

In like manner the Application Blanks of outsiders who deserve consideration are discovered by the use of the tabs and are in like manner withdrawn for study.

Attention is called at this point to the function of the tabs. Sometimes the importance of this little device is over-emphasized. Occasionally you will overhear someone thoughtlessly say that the tabs indicate the persons qualified for transfer or advancement to the vacant position. Obviously this is out of order. The selection of men and women cannot be mechanized. No single device exists that can be used in place of an analysis of the facts in the selection and placement of workers. The purpose of the tabs is to indicate those Qualification Cards and Application Blanks the recorded data of which should be weighed and evaluated in order to select the persons who should be considered as nominees for the vacancy. They are little hands raised and calling "Here I am; I may be qualified for that job."

The next step is the careful perusal of these Application Blanks and Qualification Cards. This perusal will result in a further separation of the sheep and goats: the former those who look good, the latter those who for one reason or another are not (after careful study) deemed properly qualified for the vacancy. The cards of the goats are of course restored to the file.



## THE INTERVIEW IS A PREREQUISITE

The Application Blanks and Qualification Cards of those persons who survive this first weeding out are then again reviewed and the individuals themselves who appear especially qualified are summoned for interview. *There is no substitute for the interview at this point of the procedure.* The information contained on the records is of tremendous assistance to the Personnel Manager and his assistants, but it is not a substitute for that more intimate, more personal information regarding the proposed worker-in-his-work unit which will be elicited by talking with the individual specifically with reference to the vacant position. More of the applicants and employees originally selected from the files for consideration will fall by the wayside at this point in the procedure. It will be found that in one respect or another they lack the Capacities and Interests required in the work or that they possess others which would make them much more valuable in some other position. As far as the vacancy under consideration is concerned, therefore, these persons also join the goats, and their Application Blanks and Qualification Cards are reinstated in the files. From those who survive, the best is chosen and is sent to the department head for consideration.

The best is chosen! The procedure at this point is obviously more involved than this simple phrase implies. For it is here that consideration is given to those finer points of personal difference, especially with reference to technical ability, which seem to prophesy the relative degree in which the several persons under consideration will succeed in the work.

If, for instance, research has shown that in a certain clerical position persons usually succeed in greater measure who score well in a mental Alertness Test, careful attention will be given to the Mental Alertness scores of the several individuals under consideration. If, by chance, they have not all been tested, immediate steps will be taken to secure

the scores of those who previously had not taken the test in order that the facts of mental alertness may be considered in choosing the person to send to the department head, together with all the other facts made available by the Qualification Card and brought out in the interview.

Or if, in a certain position which it is desired to fill, such study of this kind has shown that persons who score high in a Mental Alertness Test ordinarily succeed indifferently in the work through failing to find in it the opportunity to satisfy the mental qualities with which they are endowed, preference will naturally be given to that applicant who had made a lower score in the Mental Alertness Test. This kind of differentiation is often drawn when considering persons for work of a more routine nature which an individual less endowed with that elusive quality will find satisfying and at which he will "stay put," work which fails to provide the variety and opportunity for the use of initiative ordinarily demanded by a person who makes a high score in the Mental Alertness Test.

Or if, in a given position, the Occupational Description shows that Cooperativeness is an important factor and if one of the contending persons has not been rated recently in that important quality, the Personnel Manager will ask his chief to utilize the Rating Scale to indicate his judgment of the degree in which the individual possesses Cooperativeness *as at present*.

Or if the position is one in which technical ability of a certain kind is required such as knowledge of a particular type of merchandise or a certain kind of trade skill, and if research in the Personnel Department has evolved satisfactory methods of determining the degree with which persons possess that particular technical ability (Chapter XVI on Special Ability Tests), the Personnel Manager will naturally make use of them—if he has not already done so—to help him ascertain the relative merits of the competing applicants in terms of those technical abilities, in order that he may use this knowledge together with all the other facts

in hand as to their Capacities in order to make the most intelligent selection.

Practice varies as to the number of persons ordinarily referred to the department head for his consideration. Some companies make it their custom to send to the department head several persons from whom he is to make the final selection. This procedure has its advantages. If the Personnel Department is functioning effectively, however, it is undoubtedly better to send the one person seemingly best qualified for the consideration of the department head. Otherwise the department head is, in reality, performing a function of selection which properly belongs to the Personnel Department. If the person so referred to the department head is satisfactory, arrangements are then made to assign or transfer that person to the work, but if in the judgment of the department head the first person so recommended is not satisfactory, then the "next best" is sent to the department head for interview, and so on, and so on, until the department head is satisfied.

#### THE ATTITUDE OF THE "ROBBED" DEPARTMENT HEAD

In recommending present employees for transfer or promotion in this manner, every consideration, of course, is given to the interests of the heads of those departments from whom these persons may be drawn. It is the height of folly for the Personnel Department to assume an arbitrary rôle in this procedure. Any proposed transfer of a person from one department to another should be developed with the full knowledge and consent of the head of the department from which it is proposed to transfer the worker. It is not always easy to gain this consent. Naturally the departmental executive is concerned primarily with the success and effectiveness of his own department. It is entirely right that he should have this departmental pride and interest. On the whole it undoubtedly makes for the departmental efficiency.

But there is a line to be drawn somewhere. After all it is the success and well-being of the organization as a whole which is the final criterion of wise action. It is perfectly legitimate to effect a transfer which temporarily injures the effectiveness of a certain department if it will increase the effectiveness of the organization as a whole in the end. This is obvious to the higher command. It is obvious to executives in staff positions like the Personnel Manager. Frequently it is not at all obvious to the department head. Here is the need for real salesmanship on the part of the Personnel Manager. He must be able to present the facts to the recalcitrant department head in such a way that he will desire the larger benefits which will prevail from the transfers which may temporarily hamper the efficiency of his own department. This job of selling, of course, is facilitated if the Personnel Manager is able to lay before the departmental chief at the same time a plan whereby the person thus transferred can be replaced by someone else—a person not as well qualified in terms of actual experience as the person it is proposed to transfer out of the department, but someone, nevertheless, who possesses the personal characteristics and a foundation in education and experience which will enable him quickly to develop into an efficient worker in the position.

As a matter of fact, the contention that the worker should not be transferred to another department because of the temporary harm it does his present department is an echo of the commodity conception of labor. With the exception of the type of person who has stopped growing, men and women are ordinarily not content to "remain stationary." As we have pointed out, they demand evidence of opportunity for growth. This is a fundamental human instinct. That kind of executive opposition to those transfers which is expressed by such complaints as "What's the use of developing a strong department if you are going to rob me of my people?" or "Why make my department a training school for the whole organization?" is utterly lacking in

appreciation of these basic facts. It fails to appreciate that such a policy inevitably leads to stagnation and lack of enterprise on the part of the people and that a constant flow upwards, even if upward means at times out of the department, is the best thing in the world for departmental morale and efficiency. As a matter of fact, many organizations make it a conscious policy to find vacancies elsewhere for those persons in their employ who have advanced as far as they can and for whom there seems to be no probability of further promotion within the organization.

We have enlarged on this point of view because it is a very present stumbling-block in personnel administration. Yet it seldom withstands a convincing presentation of the facts. Furthermore, the departmental chief or foreman who at first resents the "robbery" of his department will ordinarily fall in line when it is pointed out that unconsciously *he is standing in the way of the individual to advance.*

#### CULTIVATING THE MORALE FACTOR

It is ordinarily more desirable, of course, to advance persons within the organization, thus creating, where possible, one of those chain promotions described in Chapter V than it is to hire someone from outside the organization. Whenever an outsider is engaged for a position for which someone within the organization possesses the necessary Capacities and Interests and to whom it would be a promotion, an opportunity is lost for stimulating morale and effectiveness throughout the organization. Each promotion on merit affects not only the individual himself, it affects everyone within the organization who knows about it. And every such person sees in it an actual manifestation of the working-out of the company's policy of promotion-from-within.

Yet it is obviously poor policy to fill a vacancy with someone from within the organization if there is someone without the organization who is qualified for the position in a far

superior degree. For this reason the Personnel Manager has recourse to the file of Application Blanks as well as to the file of Qualification Cards. If an outsider is chosen, it is good policy to explain to the hopeful aspirants within with due measure of tact the reasons why they themselves were not chosen. This procedure ordinarily results in the determination of the disappointed aspirants to qualify "next time." They know at least that their qualifications are known and appreciated and that they stand on their merits. If, on the other hand, this procedure is not followed, there is likely to be aroused a sense of hopelessness, a feeling that they had not even been considered for the position. Immediately the little devils of discontent get busy and the anvil chorus starts with the loud pedal on the absence of opportunity and the greenness of far fields.

#### FORMULA VS. JUDGMENT

In selecting the persons to refer to the department head, the Personnel Manager naturally attempts to strike a balance between the requirements of the position as shown by the Occupational Description and the Capacities and Interests of the individuals as shown by their Application Blanks and Qualification Cards. There is no formula which lends itself for use in this connection. The nearest approach to this formula is found in the Civil Service examinations where persons are required to demonstrate their knowledge and experience before they can be considered for the position at all. This is necessary owing to the immensity of the field of governmental service, but even in Civil Service procedure, personal judgment plays a very important part. Due consideration is given to those more intangible attributes of character and ability which cannot be measured or subjected to mathematical evaluation.

In the ordinary business and industrial organization, personal judgment based upon the facts as revealed in the Occupational Description, Application Blank, and Qualifi-

cation Card must be the determining influence. With these facts at his disposal, the Personnel Manager or his assistant must make allowances for certain deficiencies in the individual in the light of certain compensating attributes, and determine by a careful personal study whether or not the individual is qualified for the vacant position. Availability must also be considered; this is especially true of the applicant from without—he may now be satisfactorily employed in another organization and he may have no desire for further change. Furthermore with reference to the applicant from without, due consideration must be given to his general fitness for membership in the organization as a whole in terms of character, personality, and those other aspects of personality which will affect his relationships with the other employees and his sympathy with the ideals and traditions of the company itself. In the case of the employee already on the pay-roll, these facts have presumably already been established.

It is extremely desirable in the case of these applicants from without that they be treated with every possible consideration. If they are summoned for interview but subsequently are not employed, the reasons should be explained to them in such a way that no ill-feeling on their part is occasioned. This calls sometimes for an unusual degree of salesmanship but it is effort well worth while; the prestige of the company in the local labor market will be benefited in the degree in which the rejected applicant leaves smiling, uninjured and without a frown.

#### THE INTERPRETATION OF REFERENCES

In this chapter, it is proper that reference should be made to "References," those expressions of opinion and fact received from former employers and associates with reference to the ability, habits, and performances of individuals being considered for employment. Generally speaking, there is much information of value about the prospective employee

to be gained in this manner, but experience has shown that it is not unfailingly reliable.

In an earlier chapter we have pointed out the difficulties met in securing reliable information from former employers, and from other persons whom the applicant names as individuals qualified to comment upon his personal characteristics. The information which is received in this manner may be unreliable by virtue of faulty recollection, or through personal interest in and friendship for the applicant, or through prejudice against him. Consequently, the need for caution in interpreting the information received from references is obvious. Yet it is desirable that a company satisfy itself that the applicant is all right in a moral sense. There is a well-formulated opinion that, broadly speaking, the moral standards of the company's employees are none of the company's business. This opinion is uniformly shared with respect to religious faiths or the lack of faith, dancing, card-playing, drinking, and similar personal habits, just as long as these personal habits do not interfere with the effectiveness of the worker in his work for the company. No individual or company has the right to impose any specific moral code upon its employees or to make such a code a condition of employment if by so doing it unjustifiably interferes with the personal liberty of such persons. Certainly it is an unjustifiable imposition if the purpose of such a code is to effect a social, political, or religious reform or to force upon others an obstinate or intolerant point of view toward any cause or creed.

However, when the nature of the company's business or the nature of any specific position is such that the moral standards of individuals in the company's employ affect the adaptability of an individual for his work, it is the recognized right of the company to discriminate in the selection of individuals for that work.

Especially is this true in the case of organizations bearing a certain personal relationship with the public. It is obvious with respect to employees sent by public service corporations into the homes of the community; positions



requiring contact with the public carry with them something of the company's guarantee that the person with whom the public is dealing is worthy of its confidence and respect.

There is also a justifiable standard of character that may be set and maintained to the benefit of the company, the employees and the community. In the establishment of this standard, breadth of point-of-view and liberal allowance for fundamental differences of opinion are essential, lest the very purposes desired shall be defeated. The purpose of such a standard is not to bring together a group of people who shall first of all be devotedly prudish or pious or straight-laced. The justification of such a standard lies in the fact that the service of the company demands groups of employees who shall be conscious of their moral obligation to society and that it will make for a more harmonious and congenial working organization if the balance of the employees possess the same positive qualities of character.

In planning the procedure of securing pertinent information about the applicant from the persons whom he names as references, and from his former employers, the company must first of all determine on those qualities of character on which it desires information. The importance of those qualities naturally varies from position to position, but it is usually satisfactory to establish a uniform technique in securing the information. Especial emphasis must be given to this quality or that according to the nature of the position to be filled.

Among such qualities that a company is justified in considering in this connection are financial responsibility, moral integrity, technical ability, cooperativeness, and so forth. The letters of inquiry addressed to the persons named as references are couched in courteous terms in due appreciation of the fact that a favor is being asked. They are so constructed that the answers can be made with minimum effort. Figure 64 shows a typical reference form. The answers are, of course, entered briefly upon the individual's Application Blank.

## PERSONNEL MANAGEMENT

Dear Sir:

May we ask a favor?

John Smith has applied to us for a position as Lathe Operator and has named you as a former employer. It will be a great help to us if, in entire confidence, you will give us the information requested below. We shall be glad to reciprocate at any time.

Check appropriate box

In your opinion is he honest, straightforward and reliable?  
Would you entrust him with funds?

Yes

No

☒
☐

Is he temperate in the use of nicotine and alcohol?

Yes

No

☐
☒

Is he friendly and cooperative in temperament, cheerful and willing?

Cooper-  
ative

Usually  
So

Rather  
Difficult

Obstruc-  
tionist

☐
☐
☒
☐

As far as you know, does he possess skill in the work named above?

High  
Skill

Generally  
Qualified

Doubtful

No

☐
☒
☐
☐

Would you re-employ him?

Yes

No

☒
☐

If not, will you give your reasons? \_\_\_\_\_

If you have any further information which will assist us in helping him to make the most of his opportunities, will you kindly indicate it?

He is a good worker but not apt to make friends with his fellow workers - He is silent and moody.

If you have information which can best be given in a personal conversation with our representative, will you kindly check this box . . . . . ☐

A stamped envelope is inclosed for your use in returning this blank.

Thanking you, we are

THE ALCON MANUFACTURING COMPANY

Personnel Department.

Figure 64: Sample reference form

It is ordinarily established practice that the department head in rejecting an applicant gives his reasons for doing so. It is good practice for the Personnel Department to weigh carefully the reasons given by the department heads for rejecting applicants submitted to them. This kind of study serves both to insure logical reasoning on the part of the department head and to check up the standards by which the Personnel Department is choosing employees.

#### PHYSICAL FACTORS

In the process of selection, the individual's physical qualities must be considered as well as his mental qualities. Industry's appreciation of the importance of this fact is evidenced by the increasing degree with which the physical examination is regarded as an integral part of personnel procedure. The purposes of the physical examination are outlined in Chapter VI. Briefly it is desired to protect the company against engaging persons physically incapable of doing their work effectively, to protect the other employees against contagion, and to protect the worker himself against assignment to tasks which will prove physically injurious to him. The company physician, moreover, serves a very useful purpose in directing workers into those fields of activity for which they are best qualified by virtue of their physical abilities and qualifications.

It is ordinarily impracticable to examine physically *all applicants* for employment. Usually only a small proportion of them are ever chosen and any procedure which provided for the examination of all would involve a vast amount of lost time to the company and no inconsiderable annoyance to the applicants. For this reason it is customary to postpone the physical examination until the applicant has been selected by the Personnel Department and approved by the department head. It is at this point in the employment procedure that the physical examination is ordinarily held.

Upon his return from his conference with the department head, consequently, the applicant is then directed to the company physician. The nature of the examination itself naturally varies according to the company. The nature of work in one company will differ entirely from the nature of work in another and there will be a corresponding difference in the form of examination to which the new employee is subjected. Generally speaking, however, the examination is planned to establish the individual's health so far as his pulmonary organs, eyesight, hearing, and heart are concerned, and to reveal any contagious disease which would constitute a menace to his associates.

Reference has already been made to the hesitancy with which many persons approach a physical examination of this kind. The fact that this hesitancy is without justification does not make it any less of a problem. It is necessary for the Personnel Manager and his assistants to explain the advantages of the physical examination in such a way that so far as possible a desire will be created on the part of the applicant to be examined or at least in such a way that his objections will be overcome. It is necessary furthermore for the company physician to deal with the applicants in a reassuring manner. Otherwise important facts may be concealed and the purpose of the examination itself defeated.

If for any reason the applicant is physically unqualified for the position in question, it is proper that he should be acquainted with the facts, but this information should be imparted in such a manner that gratitude rather than resentment will be aroused. It is furthermore desirable in a case of this kind for the Personnel Manager to arrange, if possible, to assign the individual to work of another nature for which he is entirely fitted. A digest of the physician's report is ordinarily entered on the Qualification Card together with the other facts of a non-medical nature which are procured from the Application Blank and from the interviews with the individual.

When an individual is suffering from an organic impairment calling for medical attention the facts are presented to him in non-technical terms and he is recommended strongly to consult at once with his own physician.

When the individual has passed the physical examination he may be regarded in one sense as integrated into the organization. Technically, he has complied with the conditions of employment. But it is a far cry from this kind of technical integration to that moral integration through which the individual becomes a contented, interested, and effective worker. There is almost the same difference here as there is between the half-scared rookie at the training camp and the seasoned veteran, confident, and capable. Our next task is the achievement of this transmutation of the new worker into a seasoned veteran. In our next chapter, consequently, we shall proceed to the consideration of the proper methods of introducing the worker to his work.

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## XIX

### INTRODUCING THE WORKER TO HIS WORK

The company must sell itself to the employee. Informing the new employee about his work. Selling the job. Defining the term of service. Initiating pride of organization. The department head's part. The sponsor system.

SELECTING the worker for a certain kind of work and bringing him into a productive relationship with it are two entirely different things. In order to bridge the gap, we must "introduce the worker to his work." We must impart to him that information, that confidence, and that point of view which will transform him from an accepted applicant who nevertheless is usually ill at ease, into a capable worker, confident and interested. There is no sharp line of demarcation between selection as a process and the introduction of the worker to his work as a process. The two overlap. During the process of selection, the interviewer will naturally impart much information as to the company, its history, traditions, and product which will serve to establish confidence and interest on the part of the worker. But the process of introducing the worker to his work, of integrating him with his position in order to create a well-balanced worker-in-his-work unit naturally carries on after the actual selection of the worker has been completed.

It is at this point that many industrial and business concerns fall down. They fail to pay sufficient attention to those influences for and against personal morale which have so much to do with the worker's attitude during the early days and weeks of his employment. More frequently than otherwise it is the practice to send the applicant im-

mediately upon selection to the department head or foreman "to be put to work."

As a matter of fact there are at least four objectives to be attained with respect to each worker during the processes of selection and of introduction to the work.

#### THE COMPANY MUST SELL ITSELF TO THE EMPLOYEE

In the first place, the responsibility rests upon the Personnel Manager or his assistant to create personal confidence in the company on the part of the new employee. We must remember that the contract entered into between the new employees and the company is a mutual and reciprocal one. As we have pointed out, the applicant bears the same relation to the organization as does the salesman who enters into an agreement with it to deliver goods of a more concrete nature than personal services. He is entitled to the same consideration, only in far greater degree, as the value of the merchandise *he* offers to the company will necessarily be greater or less, according to the degree to which he himself is inspired by confidence and good-will.

In short, while the applicant must sell his services to the organization, in no less degree the organization through its interviewer must sell itself to the applicant. Failure on the part of the company to do so serves to contribute to an attitude of mind on the part of the new employee unfavorable to permanence of tenure.

It is natural, for instance, that the applicant should desire evidence as to the personnel policies of the company. He wants to know what the probabilities are of continuity of employment, what the company's policies are with reference to promotion and salary increase. He wants to know, although he may not express it so, whether the company entertains the commodity conception of labor or whether its personnel policies are governed by a more advanced and more human viewpoint. It is the direct re-

sponsibility of the interviewer to see to it that the applicant's questions on these points are satisfied so far as the facts make it possible to do so.

Futhermore, it is natural for the applicant to desire information about the working conditions within the company. The importance of these working conditions in his life is comparable to the importance of his home conditions. It is entirely proper that he should have confidence in the company's ability to provide him the right kind of working conditions, for, mind you, it is to furnish the setting for one-half his waking hours for presumably an indefinite period of time.

Similarly, it is proper that he should have reassuring information as to the moral and social environment which will be his as an employee of the company. He wants to know what opportunities there are for social intercourse, for self-expression outside the work itself.

Again, it is altogether likely that he may desire reassurance, although he may not do so consciously, of the worth-whileness of the company's product. This is especially true of the employee who entertains a more wholesome view of his work than one who regards it merely as a means of securing Friday afternoon's pay envelope. Experience offers abundant testimony to the fact that the worker need not be an "idealist," in the misused sense of the term, to possess the desire to contribute his services to a worth-while product. It is the obligation of the interviewer to convince the applicant that the company offers ample opportunity for the individual to make his own contribution to the public weal.

#### INFORMING THE NEW EMPLOYEE ABOUT HIS WORK

In the second place, it is of vital importance that the new employee be given a full and complete conception of his work before he is actually assigned to it. There is an ever-present temptation in the Personnel Department, ow-



ing to the pressure of routine, to dispatch this responsibility in a more or less sketchy manner. At times reliance is placed upon the name of the job to convey to the new employee the nature of the work he is to perform. The evil results of this practice are obvious. Where the new employee is compelled to rely upon his own ingenuity to visualize the work to which he is to be assigned, there is every possibility of a disastrous reaction after he goes on the job. Far fields always appear greener than those near at hand and the incoming employee expects his new job to be rich in opportunity, enjoyment, and freedom from drudgery. He finds, to his disappointment, that after all, there is considerable withered grass in this new green field. He has not yet become adjusted to his surroundings and in his sensitive mind, mole-hills become mountains. He soon persuades himself that the position was misrepresented to him. Dissatisfaction sets in and before long another boost has been given the labor turnover figures for that occupation.

Of course, this is a pessimistic picture which is not true of all employees who are sent to their work without adequate mental preparation in the Personnel Department. It is true, however, that the probability of this kind of reaction on the part of the employee is much greater when the Personnel Manager or his interviewer has failed properly to explain the nature of the work to him in the first instance. We must recall in this instance that the interviewers are human and, as mentioned above, are frequently working under great pressure. It is due to no conscious desire on their part that the new employee is sent to his work ill-informed as to its nature and content. This fact that the interviewer is working under pressure does not justify the neglect; rather it provides an added reason for especial care. In full recognition of this fact it is coming more and more to be accepted practice to require the new employee to read, and read carefully, the Occupational Description for the position to which he is about to be assigned. A hasty perusal will not suffice. The wise interviewer will

see that the new employee has ample time and opportunity to study the Occupational Description and to assimilate its contents.

This practice incidentally prevents those occasional individuals who put their trust in alibis from claiming afterward that the job "was misrepresented to them."

Where it is practicable to do so, it is sometimes desirable in addition to arrange for the employee to see the work itself, the desk or machine, the room or shop in which it is performed, especially where such working conditions must, by the nature of the job, rank low on the scale of desirability. It is very desirable for him to have a talk with his department chief-to-be, as in fact has already been mentioned as one step in the adequate employment procedure. But this interview with the department head should be more than a one-sided conference in which the department head decides favorably or unfavorably upon the qualifications of the applicant. A real responsibility rests upon the department head or his assistant to supplement the efforts of the Personnel Manager or his assistant in giving the individual as complete and as faithful a conception of his work as possible without overemphasizing either its favorable or unfavorable features. It is naturally difficult for the busy operating chief to devote much time to this procedure which he naturally feels should be the responsibility of the Personnel Department, but we have already emphasized that true personnel work is not a departmentalized function, but is a leaven permeating the entire organization; because this is so, it must be exercised as company policy by all those executives who supervise the workers in their work. So far as it is possible to do so, consequently, the Personnel Manager will impress upon the operating executives the extreme importance of giving personal attention of this kind to the applicant and the incoming employee.

Closely linked with the foregoing, in the third place, is the responsibility on the part of the organization to sell

the job to the new employee in the same way that the new employee sells his services to the organization. This is equally the task of the Personnel Manager and of the department chief—in the first instance, of course, of the former. It is his obligation to describe the work to the applicant or to the new employee as favorably as possible *consistent with the facts*. Considerable emphasis should be placed upon these four words. It would be folly, of course, to emphasize the disagreeable features of an occupation to the new employee and not to stress the favorable features as well, but it is almost equally bad policy to stress the favorable features and to ignore the unfavorable features. In the first case the applicant may decide that he doesn't care to take up the work at all. In the second case he may take up the work only to become dissatisfied and quit. This danger of overselling the job should be ever-present in the mind of the interviewer, a danger, to be sure, he will probably minimize when harassed by a labor shortage and by the clamorings of the department heads for service.

It is probably true that in attempting to describe the proposed work fairly to the new employee, the interviewer frequently neglects certain facts of importance. When selling the job to the new employee, for instance, the interviewer should not be unmindful of characteristics of the work which may have no direct reference to the pay envelope or to the nature of the duties to be performed. After all, these latter are only the more obvious aspects of any occupation. The new employee is often more concerned with his future than with his present and a fair statement of the opportunities for promotion and for salary increase may do much to create an intelligent willingness on his part to accept the position when a consideration of the immediate duties and reward might lead him to reject it.

The opportunity to explain rewards of other-than-financial nature is also very real at this point in the employment procedure. It is perfectly proper, for instance, to make reference to the importance of the work itself in the whole

scheme of company production, to the social relationships which are opened up, to the qualities of manliness and leadership which the department chief may possess. Such facts as these, intangible as they seem to be, are legitimate arguments for the Personnel Manager to employ, provided, of course, he does not lay undue emphasis upon them. It is no infrequent occurrence for an employee to find happiness and satisfaction in a given position through the presence of such factors as these when he might have been prevented in the first instance from entering the work at all by a consideration merely of duties and initial salary.

#### DEFINING THE TERMS OF SERVICE

And in the fourth instance, the responsibility rests upon the Personnel Manager to establish a definite understanding with the new employee whereby he accepts his position with complete knowledge of the terms under which he is to serve. He should, for instance, have definite information as to the hours of work, the probability of overtime, the allowance made for sickness and other good cause, as to time off. He should have definite information as to the wages he is to receive, when he is to receive them, and in what form. If a bonus is granted for superior work or for length of service or for attendance and promptness or for any other manifestation of interest and ability, he should have full information about it. In equal measure he should be informed as to the rules of conduct governing employees, specifically those in his occupation. He should know in advance of the penalties attached to infractions of these rules. If smoking on the job is a "capital offense" or intoxication off the job, or persistent tardiness are regarded as reasons for suspicion or dismissal, he should be so informed at the outset.

Somewhere in the process of introducing the worker to his work, means should be adopted to acquaint the new employee with the history and traditions of the company.

Pride of organization vies with pride of workmanship as a stimulus for permanence of tenure and superiority of performance. It is excellent practice to impart this kind of information in a special lecture either at the time of employment or through the first days of the new employee's service. Naturally the person to conduct such a talk should possess that kind of simple eloquence which arises out of sincere conviction in his subject. This is true salesmanship. As a matter of practice, it is ordinarily preferable to give these talks to groups of new employees at a time, rather than to attempt to repeat the subject matter separately to each incoming employee. Motion pictures are frequently employed to lend significance to the words of the speaker. It is frequently possible to arouse interest and to concentrate attention during the use of motion pictures, charts, and other devices which attract the eye in a degree difficult to attain by word of mouth alone. Such talks can treat with propriety of the company's modest beginnings, of the fathers of the enterprise, of its gradual growth, of the processes employed in the company's output, of the company's standing competitively in its field, of its methods of distribution and of its markets.

#### THE PERSONAL ESCORT—A PERSON OF IMPORTANCE

In considering the introduction of the new worker to his work, we must always remember that he is usually in a peculiarly sensitive frame of mind. This may lead him to respond unwarrantably to facts and events of minor importance. This leads us to a consideration of the passing of the messenger boy as the new employee's escort from the Personnel Department to the department in which he is to work. It is becoming recognized in greater and greater degree that the individual who escorts the applicant or the new employee to his department is a person of considerable strategic importance. It is natural that the individual may question his escort en route as to working conditions, as to

opportunities for advancement, as to the reliability of the information he has received from the Personnel Department, as to the personality of the executive he is about to interview. A negative suggestion or a false note here and the constructive work already done in the Personnel Department may be undone. On the other hand, if the escort is properly qualified and trained, he can do much to further reassure the new employee and reinforce his confidence. Personal courtesy, tact, loyalty, and enthusiasm for the company are qualities which should be present in every person charged with this duty.

#### THE DEPARTMENT HEAD'S PART

In the measure in which the Personnel Manager has been successful as a staff officer in giving a wholesome personnel viewpoint to the operating executives, in that measure will the department heads be prepared to carry on from this point the integration of the worker with his work. The same courtesy and consideration which has been shown to the new employee in the Personnel Department and in the lecture room and on his way to the work floor will be continued in the department to which he is assigned. Few executives are consciously discourteous and few so lack the essentials of common sense as to be abrupt and rude with the new employee. Like the executives in the Personnel Department, however, the average operating executive is working under pressure. Important papers lie on his desk. Duties of major significance await his action. There is a great temptation for him unconsciously and without the slightest intent to greet the new employee hastily and brusquely or to deny him those finer touches of courtesy which may seem of superficial importance to him but which loom up with immense significance in the mind of the new employee. There is no short-cut for the solution of this problem, its solution lies partly in executive action on the part of the higher command, and partly in the success of the

Personnel Manager in his staff relationships with the operating chiefs.

When the new employee is at last at work he has less time and inclination to entertain illusory anxieties. Usually he finds confidence and reassurance in the fact that he is doing something definite. But the integration of the worker with his work is not complete at this point. The fact that by far the greater part of any company's labor turnover exists among those who are recently employed is ample evidence to this fact. Figure 65 shows a graphic reproduc-

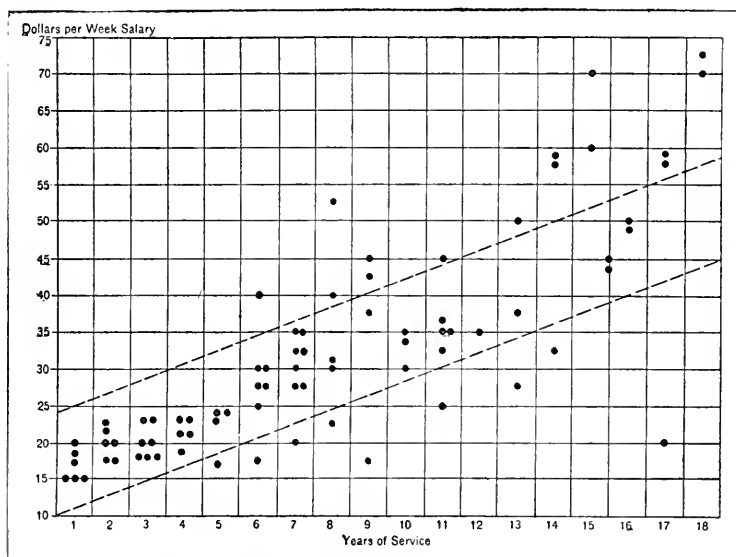


Figure 65: Graph showing Salary Progression in one company

tion of this situation within one company. The first few days and weeks of a new employee's engagement constitute a critical period. If he weathers them he is apt to stay put. The problem is to maintain that personal contact with him which will tide him over this critical period. In order to achieve this purpose it is the practice of the well-organized personnel department to keep in touch with the new em-

ployee. On the afternoon of the employee's first day at work, for instance, an interviewer, apparently bent on other business, stops for a moment's chat with him at his desk or machine to ask how things are going, to answer any perplexing points which may have arisen in his mind, to offer a word of general encouragement. The contact of this kind is usually made almost daily for the first few days until it becomes evident that the employee's uneasiness has disappeared and he is really happy and satisfied in his work.

#### THE SPONSOR SYSTEM

Many business institutions maintain a staff of employees of the proper personality and viewpoint, one or two in each department, who assume the responsibility outside their own work of looking after the new employees in their departments. In certain department stores, for instance, these persons are called Sponsors and are organized into Sponsors' Associations to which it is held an honor to belong. The name of the new employee is sent, usually through the department head, to the Sponsor in the department in which he is to work, and sometime during the first morning or at the beginning of the first lunch hour the Sponsor introduces himself to the new employee and Volunteers to escort him to the lunch room, to show him around the building, to indicate where the toilet facilities are located, to offer him that companionship without which the new employee may feel considerably at a loss. The need for choosing Sponsors of the right kind of personality and ability in this consideration of their duties is apparent. It is the usual practice to grant Sponsors extra pay in addition to their regular wage for these added duties. The investment here is slight, but the yield in terms of success in bridging this earlier period of doubt and depression on the part of the new employee is great.

It is quite impossible, of course, to set forth in a book of this kind, which deals with personnel practice in general, a definite procedure for any one company to adopt in intro-



ducing new workers to their work and in integrating them into the organization. The principles enunciated here are sound and with modifications are capable of being adapted to practically any company.

At this point in our discussion we may regard the employee as having passed through the procedure of selection and introduction to his work and as having acquired a certain confidence and stability. The need for continued personal contact, however, is as great as ever, if the employee is to grow and develop in the service. This leads us naturally to a consideration of the methods of follow-up which are necessarily a part of any well-developed personnel procedure. We shall direct our attention to this in the next chapter.

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## XX

### USE OF INSTRUMENTS IN FOLLOW-UP WORK

Difficulty of maintaining personal contact. Importance of contact outside the line of authority. Presence of perplexity and fear. Keeping the Qualification Card up to date. Personal counsel to employee. Checking up the Occupational Description. The interview. Securing the cooperation of the department head.

THE opportunity for informal personal contact between the management and the workers is naturally greater in a small concern than in a large concern. Where relatively few persons are grouped together in a productive enterprise, these informal relationships exist as a matter of course. It is easier for the management in such an organization to keep itself informed of the Capacities and Interests of the individual workers. It is largely a matter of personal observation. It is made possible by daily contact.

#### THE DIFFICULTY OF MAINTAINING PERSONAL CONTACT

It is probably true that business concerns flatter themselves that this kind of personal contact is a reality when they have in fact advanced in growth beyond the logical point at which it is possible. Growth takes place gradually. Those who are in constant association with an organization during its growth do not appreciate that it is taking place, in much the same manner as that in which a parent is unconscious of the growth of a child and needs the ejaculations of Aunt Martha on a semiannual visit to call attention to the fact. Because of this natural failure on the part of management to realize that its organization is growing slowly but steadily, we find that many concerns in endeavoring to keep in touch with their employees and to know their quali-

fications and interests are relying upon rule-of-thumb methods long after such methods have been outlawed by organization growth. It is obvious that the difficulty of maintaining this personal contact with the workers increases proportionately with the size of the organization. Occasionally in a company of the first or second magnitude, an official will be heard to remark "the management relies upon the department head and foreman to maintain that personal contact with the workers which previously existed between the management and the workers directly." At times this can be done with perfect propriety. In such companies the department head is an unusual man capable of getting out the work, of attending to the technical duties involved in his position, of working under high pressure and at the same time giving time and conscious effort to the practice of such personnel policies as are described in this book. He must, in short, combine the Capacities and Interests of a technical expert in his line with those of a technical expert in the field of industrial personnel. This combination is hard to find. Understand us, however. Nothing in this chapter should be interpreted as a suggestion that the department head and foreman should not assume responsibility for the administration of the personnel in their departments. We have pointed out in a previous chapter that they are vested with great personnel responsibility by virtue of their direct contact with the workers. The satisfaction and effectiveness of their workers in their work depend almost primarily upon the degree of leadership which they inject into their supervision. Of this we shall speak later.

The possibilities along this line that are open to the department head and to the foreman, however, do not relieve the necessity for a staff personnel administration which will coordinate the efforts of the department executives in these respects and for a line procedure which will bring the employee into touch with the management through a channel other than that of direct authority.

## THE IMPORTANCE OF CONTACT OUTSIDE LINE OF AUTHORITY

This latter consideration points to the importance of a follow-up plan administered from the Personnel Department through which a direct contact of an informal nature will be maintained between the Personnel Department and the new employee—a contact which will supplement and reinforce that enjoyed by the departmental executive. The elements of the follow-up plan are described in the preceding chapter on *Methods of Introducing the Worker to His Work*. We have pointed out that there is a period of depression through which many employees pass during the early days or weeks of their engagement. They have not found their footing. They are still confused by the infinite complexities with which they seem to be surrounded. They have not yet established reassuring friendships with their associates. They are assailed by doubts and questionings. The work appears so difficult, it is doubtful if they can do it satisfactorily.

A little good-natured ridicule, frequently the lot of the new employee, is misunderstood. A score of other inconsequential incidents assume an unhappy significance. One thing follows another and soon the worker has worked himself into a mental state which, while it is purely psychological and has no basis in fact, is sometimes as serious in its results as if all that the worker imagined were true.

The early contact between the representative of the Personnel Department and the new worker on the job is intended frankly to offset this mental bugbear so far as possible. Without any intention whatever on his part, but owing only to pressure of work, the department head may have failed to observe those little niceties of interest and courtesy which are to him perhaps so superficial but which conversely exercise such a tremendous influence upon the mental state of the new and untried worker. This personal contact with the representative of the personnel department whom the new employee thinks of in a way as his sponsor and friend is amazingly reassuring. It is a fact that a policy

providing, through conscious planning, for such informal contacts during the first few days and weeks of the employee's engagement does much to integrate the worker more quickly with his work and to reduce that unwholesome labor turnover to which we have already referred as the fruit solely of a negative mental state on the part of the worker.

The Personnel Manager or his assistant finds it advisable to avoid formality in making these initial follow-up contacts. An "interview" in the accepted sense of the word is to be shunned. The representative happens to be passing the worker's desk or machine and stops for a moment's chat. A casual question as to how things are going, a few moments' talk about certain difficulties which have arisen in the work, a word of praise for the foreman or department head—trivial as these thoughts seem, they exercise a wholesome and stabilizing influence upon the worker totally out of proportion to their apparent importance.

It is impossible to define in a book of this kind the intervals which should elapse between such contacts in a given company; the decision in each case must rest upon the conditions prevailing in that company. Generally speaking, it is well for a representative of the Personnel Department to stop at the employee's place of work for such a moment's chat on the afternoon of his first day at work, then possibly two days later, then possibly at the end of the week. Subsequently as the employee becomes more and more reassured and increasingly acclimated to his environment the frequency of such contacts can be relaxed.

When the worker is truly integrated with his work the follow-up contact changes its nature from such an informal chat as we have described to a formal interview periodically at a time and place where the employee and the representative of the Personnel Department can discuss at length and without reserve the employee's success in his work, his problems and perplexities, his opportunities and the means he should employ to realize upon them. It is the practice in most companies to interview each employee once or twice

a year but to "stagger" such interviews in such a way that the interviewing staff will consult with a minimum number of employees every day throughout the year. In this way the peak load upon the Personnel Department is ironed out. The follow-up interview becomes a part of the daily routine of the Personnel Department and the interviewers themselves are freed from pressure in conducting the interviews in a careful and leisurely manner.

#### THE PRESENCE OF PERPLEXITY AND FEAR

The purposes of the follow-up interview are fourfold. To a degree not recognized by one executive in a hundred, as we have said, the average worker is assailed by doubts and depressions which undermine his interest and efficiency. Fear is present in a degree which the ordinary executive does not recognize, although paradoxically, he often harbors it himself. It seems to be present without cause in the case of most persons working for others. It is the fear that the individual is not making good, that there is no advancement ahead for him, that he may lose his job.<sup>1</sup>

<sup>1</sup> It is the fear of unemployment which lies at the root of most of the minor fears which Labor entertains. The fear of unemployment is in reality the fear on the part of Labor that capital will not be provided to carry on industry continuously, and under conditions which will afford adequate remuneration to effort. It is an outgrowth of the fallacy that quantity of work is necessarily limited. This fear gives rise to the fear that the introduction of new machinery, or the increased use of machinery already installed, will displace labor; the fear that the speeding-up processes will diminish work; the fear that female, child, unskilled, or imported labor will be substituted for skilled; the fear that men of one trade will encroach upon the work for which men of other trades have been specially trained; the fear that the number of apprentices will be so increased as to lessen the requirement for skilled hands and the fear that long hours and continuous overtime will exhaust employment.

Allied to the fear of unemployment is a class of fears which, as seen, have a special bearing on industrial peace: the fear of discharge and of unfair treatment through the utter helplessness of the isolated workman in relation to the capitalist employer, and, still more in relation to a powerful corporation; the fear of lockouts or arbitrary exactions, and the many fears incidental to tyrannical and capricious behavior on the part of those in authority, and especially of subordinate officials toward workers under their direction. This fear extends to the power of wealth to defeat the ends of justice, by corrupting officials and influencing or controlling the judiciary

This kind of fear is detrimental, sometimes paralyzing, to personal efficiency. And, because of its very nature, the employee shrinks from discussing it with his department head.

The worker would doubtless resent the term "fear" as something detrimental to his self-respect. The word, to be sure, is rather strong. Yet in its acute form this mental attitude is undoubtedly fear and in its lesser forms it assumes varying degrees of perplexity, doubt, and hunger for reassurance.

Obviously any constructive personnel procedure on the part of a company must reckon with these questionings, doubts, and fears if it is to develop effective worker-in-his-work units within its organization. The first purpose of the follow-up interview, consequently, is that of ascertaining

and legislatures, and to the influence also of a class interest and sentiment on the part of the monied classes as distinguished from the working classes. With it are allied the many fears which have a special bearing on health in Industry: fears, for example, of physical injury and ill health, and of inadequacy of compensation or redress when injury is done.

Arising from the worker's sense of utter helplessness is also the fear, apart from combination, of the absence of any voice in determining the contract on which services are given, and the fear, in consequence, of unfair terms in bargaining and in determining the rate of remuneration, the hours of labor, and working conditions. This extends to the fear of reductions in standards already gained; the fear of individual or general reductions in wages, of increase in hours, of change in customary practices; the fear of methods intended to destroy or weaken organization. Whatever begets fear of opposition to organization helps to intensify other fears.

Beset by fears at once so numerous and constant, it must be apparent that Labor is in no way capable of putting forth effort to the utmost of its capacity. Where the mind is in a state of unrest, the arm is divested of some of its power, and the hand of some of its skill. Time which otherwise might be freely employed in furthering production, with benefit in opportunity and reward to all the parties to Industry, is consumed in effecting organization against ills that are feared, or in agitation concerning their existence. It is impossible to estimate the waste to Industry from the paralyzing effect of fear upon Labor. Were this paralysis removed, the output of Industry would multiply manifold. And how considerable would be the gain to each of the parties! Labor, assured of all but unlimited opportunity of employment, and of just reward of effort, would immediately become possessed of the zeal which makes for highest efficiency. Capital would cease to lack opportunities of profitable investment. Management would find itself restricted only by its own incapacity. To the Community, commodities and services would become available on a scale and at a price hitherto unknown. *Industry and Humanity*, W. L. MacKenzie King.

the mental status of the worker, to reveal if such fears are really present in the individual, to learn to what extent they are based on imagination rather than on fact, to explain them away in the case of the former and to help the employee remove their causes in the case of the latter. In many instances, of course, fear is entirely lacking, in which case the problem is non-existent. In many other cases, conversely, fear is present and experience shows that in these instances the worker will talk more freely and with less reserve to a representative of the Personnel Department (provided the representative is qualified temperamentally for this important task) than he will with a superior in whose good graces he feels he would jeopardize himself by admitting such doubts. He feels, and often with good reason, that the executive is concerned only with results and that he is impatient with any revelation of human "weakness" on the part of the worker.

When these facts are revealed in the interview, management is then enabled (either through action on the part of the Personnel Department or on the part of the departmental chief) to offer such reassurances or to make such adjustments as will offset it and in consequence to bring the worker to a higher degree of confidence and personal efficiency. This conception of fear in industry crosses swords directly with the conception of fear which formerly prevailed under the commodity conception of labor, that which formerly was exemplified by the conscious policy of the hard-boiled foreman who, as we remarked in an earlier chapter, "fired a few now and then to put the fear o' God in the others." Fear is not and never was an instigator of more productive effort except, of course, in unusual cases. Fear may lead to effervescence of activity, to frantic efforts to look busy, even to temporary increase in output, but as a continuing influence, fear only degrades, inhibits effort, and destroys morale and true efficiency.

2 In considering the second objective of the periodic follow-up, we must recall our basic statement that men and women



are continuously changing in Capacity and Interest. Usually this change is for the good. The individual grows in ability, in viewpoint, in responsibility, in his conception of the larger purposes of his work. By special training, he qualifies himself for a line of endeavor for which formerly he was entirely unfitted. For one reason or another he develops an intelligent interest in a branch of the work quite different from that in which his interest apparently lay at the time of his engagement or former interview. Obviously, management must reckon with these changes if it is to maintain throughout its organization worker-in-his-work units which are truly effective. As we have pointed out, the chief end of the Personnel Department is to maintain worker-in-his-work units in which Capacities, Interests, and Opportunities are properly balanced. If this balance is to be maintained, intelligent action must be taken to vary the Opportunities of the work, in each case, to conform to the changing Capacities and Interests of the worker. These changes are frequently obvious as in the case of the typist who acquires stenographic ability and thereby requires advancement to a position in which she can exercise that new-found capacity. They may be less obvious, as is apparent in the case of the machinist helper who by pottering around the house with a home-made radio set has developed an interest in electrical engineering. Here Capacity has not changed in a marked degree but that more intangible, yet powerful, factor of Interest has developed along a particular line which, if management is to utilize the boy's ability to the utmost, demands conscious recognition and the adoption of some plan whereby he can acquire training in that field and so satisfy that new-found interest.

Information of this kind with reference to changes in Capacity and Interest are, of course, entered upon the individual's Qualification Card. This is essential, for unless a record is made of the individual's development in these respects, his newly developed Capacities and Interests are

almost certain to be overlooked when vacancies arise later requiring a person possessing those particular attributes.

#### OFFERING PERSONAL COUNSEL TO THE EMPLOYEE

The follow-up interview fulfils its third purpose in providing an opportunity for giving personal advice and inspiration. The interviewer is in a peculiarly fortunate position in this respect. By virtue of his semi-confidential relationship with the employee he can offer suggestions and make recommendations which will have great effect upon the individual's initiative and ambition in his work. In the chapter dealing with Incentive we shall speak of this in further detail. Suffice it to say, however, that the Rating Scale, in the interviewer's hand, is a powerful instrument to this end. To a surprising degree the average worker is uninformed as to the reasons for his success or failure in his work. It is only human that he should attribute the former to his own ability and the latter to factors outside himself—usually the prejudice of his superior or the failure of the company to maintain an effective promotional policy. Most employees, of course, fall *within* these two extremes. They feel that they are not failures in their work, yet they are equally aware that they are not progressing as rapidly as they would like to progress. The average individual is a poor hand at intelligent introspection. The egoist will give himself the benefit of every doubt, the person who is morbidly inclined or who is overmodest will overemphasize his own shortcomings. The former needs curbing; the latter needs reassurance.

The tendencies to be lenient with oneself or to be very severe with oneself, however, are not the principal difficulties which confront the individual in analyzing his failure to progress in the measure in which he would like to progress. It is simply true that most people are poor self-analysts. Furthermore, most of them realize the fact and will welcome intelligent advice on the part of the inter-

viewer as to those qualities in which he excels and those in which he is deficient. The Rating Scale obviously thus serves a purpose of great importance in the hands of the interviewer or, as we shall describe in the chapter on Supervision, in the hands of the department chief. It is possible to make commendatory reference to those qualities in which the employee excels and diplomatically to make constructive suggestions with reference to those qualities in which he is weak. If this work is done well by an interviewer who is qualified in terms of judgment, tact, and sympathetic viewpoint, the reaction on the part of the individual is almost certain to be favorable.

The interviewer has the opportunity, furthermore, to refer to jobs well done which are credited to the employee and to refer in the proper manner to jobs in which the employee did not acquit himself so meritoriously. The dividends to the company in the time so invested, bulk big in terms of renewed interest and in terms of increased efficiency.

#### CHECKING UP THE OCCUPATIONAL DESCRIPTION

In the fourth place, the periodic interview serves to check up the accuracy of the Occupational Description. We have pointed out that the personnel situation within any company is in a plastic state and that it is changing not only with respect to the Capacities and Interests of the workers, but also with respect to the nature and Opportunities of the positions. In the same degree in which the Qualification Card of an employee which is correct today may be a very poor picture of the employee a year hence, the Occupational Description which is correct today may be far from correct later on. It is necessary for the Personnel Department to recognize the necessity of checking the Occupational Description periodically to insure its continued accuracy. This can be done through a detailed plan which has nothing to do with these interviews of the employees of

which we have been speaking. But such a procedure can be supplemented and even replaced by a plan of interview which, in addition to serving the purposes which we have outlined above, will reveal changes which have taken place in the duties and responsibilities of the various positions. It is advisable, consequently, for the interviewer to have in hand, during such interviews, not only the Qualification Card of the individual showing his ratings and his other Capacities and Interests, but the Occupational Description as well. He is then in a position to ask the employee to read the Occupational Description and to tell whether or not at this time it offers a correct picture of the occupation at which he is engaged.

#### PREPARING FOR THE INTERVIEW

There are other means of follow-up, but none takes the place of the periodic interview inasmuch as personnel work, as previously stated, must be *personal* in its working out. Such a chart as we have shown in Figure 65, for instance, is a great help to the Personnel Department in indicating those employees who for some reason or other are failing to progress as fast as they should. Here advancement in salary is viewed with relation to length of service: the X axis—Length of Service; the Y axis—Dollars of Salary. The dots indicate the salaries paid to the individual employees. Those which are falling to the foot and to the right of the chart indicate employees who are obviously failing to progress uniformly with their fellows. It is naturally good practice for the representative of the Personnel Department in preparing for his interview with an individual to ascertain where the individual falls on such a chart as this.

Similarly, the interviewer will have recourse to the Personnel Control Chart. He will identify the pin which represents the employee and trace its relationship with the pins representing the other employees in the same and allied occupations. Through the Rating Scale or otherwise, the

department head may have reported that this employee is showing signs of restlessness or has taken a special course of training or has shown marked aptitude for supervisory responsibilities. Such an employee will be marked, as explained in Chapter XVII, by a pin of a special color which will show that he constitutes a special personnel problem demanding early action on the part of the Personnel Department.

And on the other hand, the interviewer may discover such facts as these through the interview with an employee formerly thought of as well-adjusted to his work. In this case the situation is, of course, explained to the Personnel Manager and the color of the pin changed on the Salary Control Chart to indicate that here is an employee whose Capacities and Interests were considered as properly balanced with his Opportunities but in whose case recently Capacities and Interests have outgrown Opportunities. An instance of faulty balance consequently exists. There is a probability that unless adjustment is made, the employee will seek elsewhere for the Opportunity to exercise his increased Capacities and to satisfy his changed Interests. A danger signal is flashed; constructive action is called for.

#### SECURING THE COOPERATION OF THE DEPARTMENT HEAD

At times the department head, if his viewpoint is limited, will criticize this procedure as subversive to departmental discipline. This attitude, which is fortunately one infrequently observed, deserves consideration at this point in order that it may be refuted. The idea of "states rights" in industrial organizations is rapidly passing. Departments are no longer recognized as autonomous, water-tight compartments in which each department head is king by divine appointment and therefore can do no wrong. The department is coming to be recognized more and more in its relation to other departments and in its relation to the organization as a whole. The obvious unfairness of one

code of administrative procedure in one department and another code in another department is now recognized freely. The employee is no longer a vassal of the department head but a member of the organization as a whole, subject to those personnel policies which are in effect through the discretion of the higher command. This in itself would warrant the kind of contact which we have described as taking place between the individual employee and the Personnel Department acting for the company as a whole.

As a matter of fact, however, this kind of follow-up endeavor properly carried out does not conflict with the authority of the departmental chief. On the other hand, it supplements the efforts of the departmental chief to develop the effectiveness of his people. When its true significance in this respect has been impressed upon the departmental chief, his understanding and cooperation are a natural consequence.

There is a vast amount of information with reference to the relationships between employees themselves and the relationships between workers and their work within an executive's department of which he, by the very nature of his position, is not in a position to discover. We have spoken above of the hesitancy of the individual to approach his chief on personal matters affecting his efficiency in his own work. He cherishes the idea that the boss thinks he is all right and misleads himself in believing that any admission of perplexity on his part will jeopardize him in the eyes of his chief. Yet this very information is of vital importance to the departmental chief in administering his department. It is surprising to what extent John Jones who is engaged in this kind of work thinks he will injure his standing with his superiors if he evidences a greater interest in *that* kind of work. The fact that many executives will pooh-pooh this idea does not detract in the slightest from its significance.

This is the kind of information which is brought to light in the interviews between the employee and the representative of the Personnel Department whom the individual re-

gards as a kind of personal friend—that is, of course, if the interviewer has sold himself properly to the employee and convinced him of his friendliness and sincerity of purpose. There is nothing harmful in the interviewer communicating these facts to the departmental chief, provided he uses that judgment in doing so which will respect both the interests of the employee and the interests of the company. Under such circumstances the employee will be glad to have the interviewer confer with the department chief with reference to his special Capacities and Interests, and his Opportunities for self-expression and for growth.

#### SUPERVISION

This touches very closely naturally upon the subject of supervision, that day-in and day-out relationship which exists between the department head and his assistant and through them the workers. Any so-called personnel policy which attempts to take away the department head's prerogatives in administering his department is obviously following a wrong trail. The department chief, his executive assistants, and foremen are occupying positions of tremendous importance in this work by virtue of their constant contact with the employees. It is through them that the personnel policies of the company must necessarily be carried out and it is in keeping with this idea that the Personnel Department exercises a staff rather than a line relationship with them. It is in appreciation of this fact, consequently, that we shall devote a chapter later in this book to the question of supervision.

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## XXI

### EDUCATION AND TRAINING

A. Training on the Job. 1. Experienced or skilled worker. 2. Instruction by supervisor. 3. Training by special instructor. 4. The understudy system. 5. Flying squadron. 6. The apprenticeship system. B. Training in company schools. 1. Vestibule schools. 2. Company schools. 3. Americanization courses. C. Publicity. 1. Lectures and conferences. 2. Factory paper. 3. Bulletins. 4. Moving pictures. D. Indirect agencies. 1. Company reading rooms. 2. Company library. 3. Cooperation with the public schools. 4. Night schools. 5. Correspondence courses. Using the Occupational Description for training. The use of the Promotional Chart. Use of the Application Blank and Qualification Card. Use of the Mental Alertness Tests and training. Mental Alertness Tests as a basis for classification in factory schools. Need of classification in factory schools. Mental Alertness Tests as a basis for classification. The use of Trade Tests and Special Ability Tests in training.

WE have recognized right along that there is no "labor problem" but a multiplicity of "labor problems" sometimes involving groups of workers but more often involving individual workers. In this sense every worker presents to management an individual personnel problem. This is true because workers in shop or office differ in the things they are fitted to do and are capable of doing. Furthermore, they differ in their interests, aims, hopes, and fears. The necessity for recognizing these important differences leads naturally and inevitably to a careful consideration of education and training as a balance-wheel in helping to bring about ever more harmonious adjustments between the individual worker and his work, and to increase the effectiveness of the worker-in-his-work unit by increasing Capacities and Interests—especially Capacities.

We know, now, that it is difficult if not impossible to get *just* the right man for a given position. We know that an individual worker himself is never static. We know also that jobs have a mysterious way of changing. So it comes about

that a well-planned education and training program is needed to help keep the balance between the Capacities and Interests of the worker on the one hand and the Opportunities and requirements of the work on the other.

This dynamic point of view toward personnel problems stresses the importance of industrial education and training. We must avoid looking at training as an activity divorced from all the other personnel activities. It must be viewed as an integral part of the whole personnel program with all of its many activities functionally interrelated. For this reason we shall discuss the ways in which the personnel instruments described in this book can be utilized in carrying out education and training programs.

Before we proceed to a description of these methods it will be well to have before us in outline form the main agencies that must be depended upon to achieve the desired results. These agencies may be listed as follows:

#### A. TRAINING ON THE JOB

1. *Experienced or Skilled Worker.* The new employee or the employee transferred to work of a different nature is broken in by an experienced or skilled worker. In employing this method, care must be taken to insure three things: (a) that the experienced worker is a good teacher, (b) that the experienced worker has an effective incentive and sufficient time for carrying out his teaching duties, and (c) that the experienced worker be provided with an accurate account of the training needs of the worker he is to teach.

2. *Instruction by Supervisor.* In this case the worker receives his instruction at the hands of the department head or foreman. It is necessary that the factors outlined in the preceding paragraph as essential be carefully observed if good results are to be achieved.

3. *Training by Special Instructor.* Many companies have recognized the difficulty of securing satisfactory re-

sults through the foregoing agencies and so they have placed reliance upon special instructors. The special instructor is chosen primarily because of *his ability to teach*. This is something entirely apart from trade, skill, and trade knowledge. It is now generally recognized that the skilled worker may not be and seldom is equally skilled in teaching. The special instructor is chosen secondarily because of his familiarity with the work itself for which he is training others. All of his time and energy are devoted to his teaching duties, a fact which accounts in part for the economy of such a training agency.

4. *The Understudy System*. This method places the worker on a given task with the definite purpose that he shall serve as an understudy to the man on the work. This understudy may be taught by either of the three preceding agencies.

5. *Flying Squadron*. The flying squadron idea arose to meet the necessity for developing workers possessing an all-around knowledge of the work in the various departments in order that they may be able to step into minor executive positions unhandicapped by a too narrow or too specialized training and point of view. Furthermore, the flying squadron can be used to balance production by assigning the workers to departments needing extra men because of temporary increases in the production load or because of absenteeism, vacations, and so forth. The varied experience gained by workers on the flying squadron is usually supplemented by systematic classroom instruction at stated hours during the week. Such supplementary instruction may deal with business English, commercial arithmetic, shop mathematics, technical information, history of the particular industry and the particular company, principles of economics, business administration, and industrial management. This training agency has proved very useful, as shown by the fact that the number of industrial organizations, offices, banks, de-

partment stores, and so forth, utilizing this method of training is constantly increasing.

6. *The Apprenticeship System.* Here is a time-honored institution. It is perhaps the oldest and at one time the almost universal and sole training agency in industry. While it is true that industrial methods have been completely revolutionized since the days of the mediaeval guilds when apprentice training blossomed forth as a systematic method of training, still apprenticeship training has persisted. In fact, it is probably one of the most universal forms of industrial training in existence today. It has persisted in spite of the splitting up and the subdividing of general trades into highly specialized kinds of work. Here is a system that can be utilized by Personnel Management to excellent advantage in certain phases of its training work.

The six foregoing agencies or methods constitute the typical modes of training *on the job*. Now, let us turn our attention to training methods that may be classified under the caption "Schools."

## B. TRAINING IN COMPANY SCHOOLS

1. *Vestibule Schools.* Vestibule schools set up and operated by individual companies have arisen to meet the training problems created by the increasing subdivision of labor. It is astonishing to learn that perhaps the vast majority of machine production jobs are to be classed as semi-skilled operations requiring an incredibly short training period. Furthermore, skill in one specialized task does not qualify a worker to take up another specialized job in the same or in another company without additional specific training. This is true not only of mechanical occupations but also of office work. Evidence derived from labor turnover analyses is startling in that it reveals not only a high turnover rate for such positions but an excessive turnover rate when attention is confined to recently employed workers. This is explained more fully in Chapter XXVI. In other words, management must face the fact that the average length of

service of recently employed workers on these semi-skilled jobs is alarmingly short. This means that the quickest possible education of the worker to a point of productive efficiency must be attained if that employment is to be profitable to both the worker and the company. The vestibule school where the training of such workers is centralized, systematized, and supervised by expert teachers, is one of the best methods available to management for meeting the problem. Such a school not only helps make the employment of short term workers on semi-skilled jobs profitable, but it also aids in increasing the average length of service of the newly employed worker. This means a reduction in the labor turnover rate for such workers, brought about by quickening the process of bringing the worker to standard production efficiency, thus insuring normal earnings in a shorter time than otherwise would be the case, and avoiding the discouragement resulting from the more prolonged period of less-than-normal earnings.

The effectiveness of the vestibule school can be greatly increased if the instructors are supplied with adequate information concerning each newly employed worker's strong points and weak points. The information collected by the Personnel Department leading to the selection of new workers should thus be conserved and utilized to the fullest possible extent in planning the exact type of vestibule training each new worker is to receive.

2. *Company Schools.* There is an increasing tendency for modern industrial and commercial companies to establish courses within their organization for the purpose of giving specific or general training to selected groups of workers already on the job. This may be done by conducting special courses to meet some emergency or to meet the needs of some particular group of workers. Such training courses are usually designed to fit the employee for larger responsibilities either in his present position or in different work. It is not in order to list here all of the possible specific and general courses that have been developed in various compa-

nies. Mention of a few of many courses will indicate the scope of such courses: shop mathematics courses for mechanical workers, stenographic courses for typists who wish to become stenographers, salesmanship courses for prospective or present salesmen, management courses for foremen and department heads, and so forth. Some few companies have developed such courses, both formal and special, to a point where the list rivals the crowded curricula of our foremost colleges. The work is organized and placed in the hands of a large corps of instructors who conduct their classes in a school building completely provided with classrooms, laboratories, apparatus, and equipment. In short, these educational activities seem, at times, almost to constitute a real industrial university.

It is obviously necessary to have a carefully planned program designed to fit the needs of each company. Since no hard and fast program can be drawn up that would be applicable to all companies even though they be in the same industry, it is obvious that a well-developed personnel administration will be able to do much in the way of determining the needs in the company for special kinds of ability that must be met by such training as well as locating and identifying the individual workers who would be most benefited and who most desire particular courses.

3. *Americanization Courses.* The discovery of the large number of foreign-born workers (and of natives born in certain parts of this country too, for that matter) who fail to learn to read and write the English language, though they may learn to speak English fairly well, has led many companies to organize what have come to be called Americanization Courses. It is recognized that the term "Americanization" is not wholly suitable, still it does serve to identify those educational efforts designed primarily to reduce the illiteracy that at present characterizes certain portions of the working population. The necessity for this work is fairly obvious once the extent of illiteracy in a given company is fully grasped. Illiteracy places a real barrier be-

tween the management and the worker so far as the effectiveness of written instructions, bulletin-board notices, house organs, and safety notices and signs is concerned. Many Americanization courses are not confined to assisting the foreign-born worker in becoming naturalized. They are more and more focussing attention on American History, Civics, and Simple Economics in addition to the work in English which is basic. Here again such work can be most effectively organized and conducted if the company is fortunate enough to possess a personnel administration capable of producing the necessary information concerning the Americanization needs of each worker.

The three agencies listed above give us a bird's-eye view of the training and educational work being conducted by various individual companies under what may be classed as schools. They represent training activities in an organized way away from the job, whereas the agencies listed in section A represent training activities on the job. In the subsequent portion of this outline we will mention briefly certain agencies that may be thought of as supplementary to those already mentioned.

### C. PUBLICITY

1. *Lectures and Conferences.* Lectures for departmental groups covering operations in the department, the interrelations of those operations, and the relation between the work of a given department and the work of other departments and divisions have been found of much value by executives in bringing about a better *esprit de corps*, in solving production problems requiring a high degree of cooperativeness between groups of workers, and so forth. Lectures for occupational groups, divisional groups, and so on, are of value in increasing the effectiveness of the work done by the groups involved. The success of the lecture method depends, of course, upon the relevancy and intrinsic interest of the topics presented, and upon the ability of the speaker to put his ideas over. The speakers may be either men from within

the company who have been unusually successful in some project or outside specialists who can present matters of real informational value. The lecture method is frequently conducted as a group conference affair with ample opportunity for questions and answers. Some have increased the success of such lecture and conference meetings by arranging for a luncheon or dinner either in the company restaurant or in a hotel. The main thing, of course, is to assure good speakers and live topics. An alert and progressive personnel administrator will uncover many problems, especially those of a group nature, that can best be attacked through the systematic or occasional use of lectures.

2. *Factory Paper.* The factory paper or house organ, as it is very frequently called, can be used to good advantage in educating the workers concerning an almost unlimited number of topics. Safety work, health and hygiene, wage questions, company history, plant processes, economic principles applicable to the particular business, and so forth, are all matters upon which the workers very frequently need enlightenment. The factory paper, if judiciously managed, is an excellent medium for much effective educational and training work. It must be edited in an interesting manner, however, for the employees must *want* to read it if the management is to convey its message to them.

3. *Bulletins.* The bulletin board has long been a means whereby management can talk with the workers. That it, as well as the other agencies we have been discussing, has been abused and its usefulness thereby impaired goes without saying. Many companies have posted on their bulletin boards notices having to do solely with rules and regulations, prohibitions and penalties, ignoring the splendid opportunity offered for communicating with the employees along educational and inspirational lines. In most companies the value of the bulletin board can be greatly increased by proper attention to its educational and training possibilities inherent in the bulletin board.



The bulletin board has been largely employed heretofore in connection with the necessary educational work that must be done in carrying out a consistent safety first campaign. Its use in accident-prevention work has undoubtedly been effective. No doubt, there are other educational programs that could be helped by a more liberal use of well-planned bulletins. The use of the bulletin board in this way can be supplemented by carefully prepared leaflets and pamphlets on subjects that require further elaboration than is possible in a bulletin placard.

4. *Moving Pictures.* Industrial motion pictures will probably play an increasing role in the educational and training programs of the future. Undoubtedly the visual method of teaching is very effective for a large proportion of the population and hence the moving picture can be utilized to good advantage in a variety of ways. The newly employed worker can be given a general impression of the scope and nature of his company. Not only such general impressions but also detailed, vivid accounts can be given concerning the whole productive process, from the obtaining of the raw materials to the finished article in use. Furthermore, such pictures can be advantageously used in teaching a worker many complicated mechanical processes that could scarcely be conveyed in any other way. "Slow" motion pictures reproducing action at a fraction of its real speed are especially enlightening for some processes. The "cartoon" technique makes it possible to portray graphically operations, such as the "insides" of an internal combustion engine which naturally cannot be reproduced photographically. Extensive use of this invaluable educational and training aid has not been made because of the lack of suitable films. In part this has been due to the expense involved but we may confidently expect that larger use of the motion picture as an educational device will lower the cost of production, thus in turn increasing the demand for such pictures.

The agencies listed above under publicity are important devices. The fact that we will not further extend our dis-

cussion of these agencies should not lead the reader to underestimate the importance that must be attached to each of them in the actual carrying-out of training programs.

#### D. INDIRECT AGENCIES

1. *Company Reading Rooms.* Companies that maintain rest rooms, club rooms, or reading rooms for their workers frequently fail to realize that such rooms afford an excellent opportunity for placing educational material in the hands of the workers. It is obvious that much care must be exercised in the selection of material that will be truly educational and at the same time attractive enough to compete on its own merits with the newspapers, magazines, and books that should be available in the reading rooms.

2. *Company Library.* An increasing number of companies realize the opportunity for extending their educational training programs by maintaining company libraries where recreational and instructional books can be secured by the employees. Such company libraries are usually linked up with the Public Libraries so that a wide assortment of books are made available, changes being made as rapidly as the circulation of given books ceases. There is usually a provision whereby a worker can apply for a book in the morning and the book can be secured from the Public Library during the day if it so happens that the book is not in the company library. Reports from company libraries are reassuring not only from the point of view of the surprisingly large number of employees who use the library facilities but also from the point of view of the large number of technical books withdrawn for study.

3. *Cooperation with the Public Schools.* The educational and training program within a company can be tied up in many ways with the offerings of the public school system. This is especially true of the Continuation School. This type of school has been developed to continue the general education of youth from fourteen to sixteen years of age during part of the working week. In some cases the

student-worker attends class in the public school for eight or ten hours a week, devoting the rest of his time to work in industry. In other cases an alternate program of work and school is provided in which case the student-worker goes to school one week and works the next week. With the increasing demand that the public educational system keep in touch with all children until they are eighteen years of age, it is safe to say that this sort of cooperation between industry and the school system will become ever more prominent. Those in charge of training programs in individual companies will need to link up their programs with that of the public school to the end that a better coordination of educational efforts is achieved. This sort of cooperation and coordination should result in enriched apprenticeship training methods, for the schools could emphasize those things that will enable the apprentice and future skilled worker to become a better citizen, while industry supplies him with the training that will enable him to become a more effective worker.

4. *Night Schools.* Advantage of the many night schools, private, semi-public and public, can also be taken by those responsible for company training programs. Encouragement to take advantage of such opportunities can be given to those workers who would really benefit from such supplementary instruction. Care should be taken of course to prevent the lamentable waste of time and money on the part of those workers whose ambitions lead them to persist in night school work, yet who are taking courses that are demonstrably beyond their abilities and capacity to learn. On the other hand, personnel administration has an equally strong obligation to instill in the worker of unusual ability the desire and ambition to fit himself for positions of greater skill or responsibility by attendance at a well-conducted night school.

5. *Correspondence Courses.* What is true of the preceding agency is perhaps also true of the usefulness of correspondence courses as an indirect agency in education and

training. It is, of course, probable that a smaller proportion of individuals possess the persistence and industry to undertake and complete a correspondence course. This means that Personnel Managers who utilize such courses as part of their training methods need to give unusual thought and attention to the Capacities and Interests of the employees whom they are considering for such courses. Recognition of the difficulties and accumulation of facts about those who succeed and those who fail (when given the opportunity to pursue such courses) should lead to more and more accurate decisions in individual cases.

The foregoing indirect agencies of education and training are being used effectively in many companies. Their importance warrants further elaboration and discussion, but our purpose here is merely to mention them in the hope that the reader who may be especially concerned with any or all of them will get the specialized literature dealing with them in greater detail. For this purpose we mention the titles of a number of valuable books at the end of this chapter. We are here concerned with an attempt to show the ways in which the *instruments of personnel management* can be utilized in furthering the effectiveness of education and training work.

With this brief review of the *agencies for education and training* let us consider concretely some of the beneficial results that can be brought about by a thoroughgoing utilization of *personnel instruments* in connection with training problems.

In the interest of clearness it will be well once more to have before us the fundamental conception of the function of personnel management as defined in earlier chapters. In this way we can more readily grasp the significance of the instruments on the one hand and their usefulness in training matters on the other.

The objective of good personnel work is to build up and maintain an organization of workers, each one of whom shall be adapted for and interested in his work. With re-

spect to training as well as all other phases of Personnel we should adhere to the needs of the particular organization in building our program. When in an organization it is evident that it will be advantageous to develop the workers within the organization the question arises: shall this development be secured by specific or general methods or both?

In either case the immediate problem is: what should these workers know that they don't know now? For the answer to this question we must go first to the descriptions of the occupations for which we are planning to develop these workers.

#### USING THE OCCUPATIONAL DESCRIPTION FOR TRAINING

We have already pointed out that one of the major objectives of the Occupational Description is its use in acquainting the new employee with the nature of the work to which he is to be assigned.

The Occupational Description enables the employee himself to get a well-rounded idea of the nature, duties, and responsibilities of the position, its specific duties, the machines, tools and materials he will use and the special ability or skill he should possess. It will also inform him concerning the amount and kind of education and experience he should have as well as the language ability—if any—required and the personal qualities needed. Such educational information is invaluable to the employee who is eager to make good on the job, for it enables him to map out a course of self-improvement for himself to strengthen himself in those elements in which he considers himself to be weakest. Furthermore, he will gain an exact knowledge of where success in this new job will lead him and he can prepare himself more intelligently for such promotion. It is obvious that such information in the hands of an alert employee will make him more receptive to the training op-

portunities afforded him in the company and at the same time will help him to help himself through self-education.

The use of the Occupational Description in helping build specific Training courses consists in assuring that the executives responsible for training shall be informed of the same essential facts. They will be able to carry forward the building of training courses for employees with maximum effectiveness in minimum time because the training will tend to become more and more definite and specific. The ineffectiveness that exists in some training efforts in recent years has arisen because of the lack of adequate information on the part of the instructor concerning the specific training requirements of the actual occupations in the company. General knowledge of duties and requirements secured through casual observation of the work is not enough. Recourse to the detailed information contained in the Occupational Descriptions must be had, and this must be supplemented when necessary by further analysis of the specific requirements of each position.

Information concerning general courses is also ascertainable from the text of the Occupational Descriptions. If, for instance, in reviewing the descriptions for a large variety of positions in an office organization it is found that a special knowledge of English or Arithmetic or Geography is needed in a majority of cases, and if at the same time it is discovered that the source of labor supply does not yield people possessed of that knowledge, it is obviously desirable that it be taught as a general course.

#### THE USE OF THE PROMOTIONAL CHART

In the absence of a carefully constructed Promotional Chart the executives responsible for training are unable to organize their efforts so that an effective "training for promotion" program can be put across. Careful study of the Promotional Chart for a given company will reveal at once the existence of certain positions that need to be looked

upon as feeders to positions of greater importance. The existence of such positions is no guarantee that they will actually serve as feeders. They will not do so unless a systematic effort is made to give additional specific training to employees now in those positions so that those employees can be prepared to take over the duties in the positions that lie ahead. The use of the Occupational Descriptions in conjunction with the Promotional Chart should lead to the development of real "training-for-promotion" programs in those companies that are progressive enough to realize the advantages in following such a personnel policy.

#### USE OF THE APPLICATION BLANK AND QUALIFICATION CARD

There are several important uses of the Application Blank and the Qualification Card that should claim our attention when we are thinking about training problems. In the first place they will indicate to the employing and training executives the specific training needs of the new employee. Accurate information on this point at the time of placement is invaluable in shaping the introductory training that should be given to each new employee.

In the second place, the study and tabulation of the items on the Qualification Card concerning the education and training *desires* of each employee will enable management to organize its training program not only with reference to the training needs but also to the training desires of its employed staff. It has been the common experience of many executives to wax enthusiastic over some new course that they thought was needed, to introduce the course and then discover that few if any of the employees desired such a course. It is the old story of leading a horse to water but being unable to make him drink. A different conception of the training proposition has been gained by those executives who have taken the trouble to discover the training desires of their workers, in the way that is here indicated. The discovery of such information has proved in-

valuable in revamping training plans in accordance with a knowledge of the workers' desires.

In the third place, the selection of workers for given training courses can be materially improved through a judicious use of the Application Blank and the Qualification Card. In most instances it is a matter of precarious judgment just what workers will succeed in a given training course. Where the number to be trained is sufficiently large, either within a given time period or over a long time period, it is now possible to develop objective standards of selection based upon a careful statistical study of the Application Blank and Qualification Card records of those who have succeeded and those who have failed in the training course previously. The statistical technique involved is fairly simple. After a training course has been in operation for a sufficient time to enable the management to identify a fairly large number of workers who have been successful and unsuccessful in the course, the record cards of these employees are subjected to analysis. This analysis consists in determining the differences that may exist between the successful and the unsuccessful employees with respect to each item on the Application Blank and the Qualification Card. Suppose now that the analysis shows a distinct difference between the two groups of employees with respect to education, age, amount of previous experience, marital status, Mental Alertness Test score, and rating scale results. It follows logically that these items are the ones that should receive attention in the future selection of employees for the course in question. This technique is so clear-cut and can yield such definite standards of selection that it is safe to prophesy that its use will be widespread in industry before many years elapse. Its use will lead to real economies in training, for it will then be possible to restrict a given course to those only who will be able to benefit from such instruction. The old method of "guess" and "hunch" with its inevitable waste and discouragement will be relegated to the same region where



former guess methods of selecting steel for production uses now reside.

#### USE OF THE MENTAL ALERTNESS TESTS IN TRAINING

The two chief ways in which the Mental Alertness Tests can be used to assist the training work are: as a device for selecting those best fitted for a training course that makes much demand upon mental alertness or ability to learn, and as a device for classifying workers into homogeneous groups on the basis of learning ability. In either case it is necessary to determine the extent to which mental alertness facilitates progress in assimilating the course in question. In those courses where mental alertness is important we find that the test results are very valuable aids in getting maximum results in minimum time. For such courses it is ordinarily a fairly simple research problem to determine the mental alertness standard below which it becomes useless to attempt to instruct a worker. This problem has to do with the usefulness of the tests as a means of selecting workers for the course. The problem of classifying the workers into groups according to ability to progress in the course is also a fairly simple research problem. This can be done most advantageously, of course, only where there are sufficient numbers to warrant separate groups. In classes for foremen, in Americanization classes and in management classes particularly, the Mental Alertness Tests can be used for grouping the students on the basis of ability with excellent results. To indicate the necessary steps in such research and the results that have been secured we are quoting in full from a report on the use of the tests for such a purpose.

#### MENTAL ALERTNESS TESTS AS A BASIS FOR CLASSIFICATION IN FACTORY SCHOOLS

Antiquated educational methods were based on the tacit assumption that all students are about of equal ability and that all should make satisfactory school progress. Such an assumption is

obviously not in accord with facts and the attention of educators more and more has been directed toward the striking differences in ability found among all classes of students.

A new set of educational principles has been developed within the past few years that takes into account the existence and importance of these differences in ability. The inequalities of students are therefore being reckoned with more than ever before, and courses of study are being arranged in such a way as to permit each student to make progress at a rate that is normal for him. This means that those of unusual ability are now permitted to progress at a rate that is much faster than the rate for average students. It means also that those with ability below average are no longer prodded and forced to keep up with the average students' rate but are permitted to proceed at a slower pace mastering each part of the course as they go along.

Mental Alertness Tests have been an important contributing factor in bringing about these changes in educational methods because they point out striking differences in the mental ability of students.

#### NEED OF CLASSIFICATION IN FACTORY SCHOOLS

As industry attempts to conserve its man-power and attempts to make effective the potential ability of each employee, it will increasingly organize effective training courses. With the establishment and operation of such courses, the principles mentioned in the opening paragraphs of this report must be adopted if the educational program is to be successful.

As illustrative of the way Mental Alertness Tests can be utilized in carrying out this modern educational principle of classification according to ability to learn, we here present the results of an experiment conducted by a group of consultants and the Educational Department of a large industrial concern.

There is a three year course in this plant designed to train factory employees for minor executive positions. These employees have been selected to learn all the major production operations in the plant and are instructed in the principles of management. An attempt is made to classify these men into three groups according to their ability to learn.

The first basis for this classification was the public school record of each man. High school graduates or men of equal ability were placed in section A. Grammar school graduates or men of equal ability were placed in section B. Men having less than eight years of schooling were placed in section C.

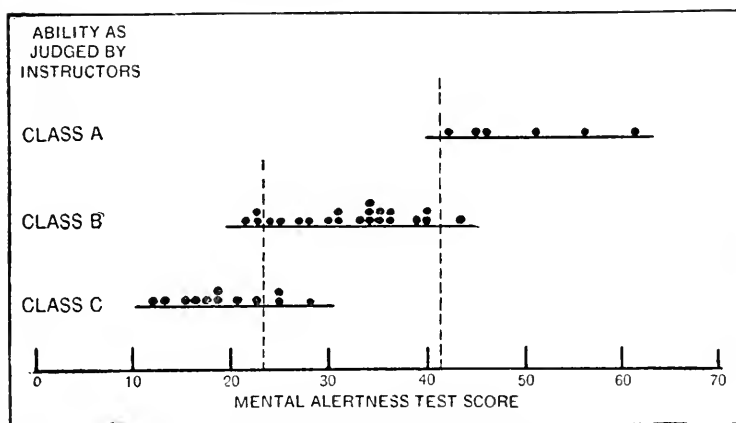


Figure 66: Chart showing the relation between known ability of men in a factory school and Mental Alertness Test Score

As time went on it became apparent that this system of classification was unsatisfactory. It was found, for example, that after considerable time some C men with only fifth grade schooling were really able to do the work of the men in section B. It was then necessary to transfer them to Section B. Some in section B were found out at a later date to be really qualified to do section A work. It was also discovered that some with a high school education were only able to do B work although they had previously been placed in section A. Some who had been placed in section B because of previous schooling needed to be placed in section C. Such shifting and transferring from one section to another after the course was partially completed was undesirable because it wasted the time of the instructors and students and also brought about unnecessary discouragement to those who had to be demoted.

The instructors desired to determine if the Mental Alertness Tests would provide a more satisfactory basis of classification. The results are shown in the chart illustrated in Figure 66. Each student-employee's score is represented by a dot. The students were classified by the instructors who were unaware of the students' Mental Alertness score in Classes A, B or C *according to the progress they had made in the course.*

#### MENTAL ALERTNESS TESTS AS A BASIS FOR CLASSIFICATION

The test scores divide the students with remarkable exactness. All Class A students scored over 41 points in the tests. Only one

Class B student scored more than 41 points and the instructors stated that he might be a Class A man if he applied himself. All Class C students except three scored less than  $23\frac{1}{2}$  points.

The highest scoring "C" man according to the instructors might be a "B" man if he applied himself—the other two "C" men scoring more than  $23\frac{1}{2}$  points were doing better work in the school than the average "C" men were doing. These class limits seem to be adequate for the classification of students in this particular course.

Such limits cannot be used by other courses or schools for the purpose of classification. In each case it is necessary to determine the class limits that will yield the most satisfactory basis for classification. With that accomplished, a training course can better meet the needs of its individual students and thus effect a desirable economy of teaching.

#### THE USE OF TRADE TESTS AND SPECIAL ABILITY TESTS IN TRAINING

It is not our purpose to point out all of the possible applications of Trade Tests and Special Ability Tests in the field of training. One such application in connection with an apprentice training course will suffice to indicate the general idea behind such applications. In order to get this application before us in the actual setting in which such tests were used, the reader is referred to the report in the appendix under the heading "A Plan of Apprentice Training."

This report stresses the use of "job tests" (allied to the Performance Type of Army Trade Test) as well as the use of well-selected questions (allied to the Oral Type of Trade Test) as a means of measuring progress in the course so that the instruction can be individualized; that is, under this plan, the lock-step system of so many years of apprenticeship which disregarded individual differences in ability is done away with. A more flexible scheme of instruction is adopted whereby each apprentice's advancement through the course takes place according to his demonstrated ability. In the appendix of this book we have inserted the

Training Manual, prepared for this apprentice course, showing in detail the type of job tests and oral questions that were prepared for use in instructing and testing students in the course.

In concluding this chapter on Training we would point out again the fact that our treatment departs from traditional treatments of the topic chiefly in the absence of any detailed discussion of the principles and methods that have been used in handling specific kinds of training courses. We are much more interested in the implications for training of our dynamic personnel point of view which emphasizes the importance of individual differences in Capacity and Interests. Stressing this fact of individual differences, indicating how training programs need to be adjusted to those differences, showing how the personnel instruments previously described can be utilized in individualizing training, all lead to a radically different conception of training than has hitherto been held in industrial circles. We feel certain that the soundness of this point of view and of these methods of getting results will lead to a better realization of the intimate relation between training and personnel administration. With this accomplished we will find that the accomplishments of both will be increased. Thus training will cease to be formal, isolated teaching and will become tied up with the larger personnel purpose of discovering, developing and balancing the Capacities, Interests, and Opportunities of each and every worker.

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## XXII

### THE DEVELOPMENT OF INCENTIVE

Specific incentives. Information as to opportunity a factor in incentive. The true nature of the Qualification Card. Use of instruments in creating incentive. A type of worker who will not respond.

THE opportunities for constructive work are limitless in increasing the productive efficiency of the personnel in an organization through removing so far as possible those maladjustments which detract from individual efficiency. The millennium is not yet. Personnel practice has not reached that degree of effectiveness which in any considerable organization would wipe the slate clean of maladjustments of this nature. No sooner is one personnel maladjustment of this kind solved than another makes itself apparent. The utmost effort of the Personnel Manager will never remove from his Personnel Control Chart all the white and gray, blue, and brown pins.<sup>1</sup> He will constantly strive, nevertheless, to reduce the number of those pins to the lowest possible minimum.

#### THE RESPONSIBILITY FOR INCREASING CAPACITIES AND INTERESTS

As a matter of fact, even if the Personnel Manager in an organization were successful in establishing the phenomenon of perfect personnel relationships throughout the organization, his task would still be unfinished. His responsibility involves more than *knowing* the Capacities, Interests, and Opportunities throughout the organization and bringing them into a proper balance with each other. He is neces-

<sup>1</sup>See page 319.

sarily charged with the task of *stimulating* and *increasing* these three factors, especially Capacities and Interests, in such a way that every worker-in-his-work unit will be capable of greater and greater "production."

So far as the development of Capacities is concerned, we have in the preceding chapter discussed the most obvious approach, that of training. Whereas supervision, environment, and other factors exercise an influence upon Capacity, the most potent agency for increasing it is training.

In this chapter we shall proceed to consider ways and means of developing *Interest*.

In order that we may do so intelligently, let us refresh our recollection of the content of the term. Interest, in its usual sense, is a conscious state of mind, but Interest in the sense in which we use it here is a far broader term, intended to express all those motives and impulses, conscious and unconscious, all those tendencies to react to this stimulus and all those tendencies not to react to that which go to make up the individual's character.

Relatively speaking, industry has made little progress in the analysis and control of these springs of action. As time goes on, we shall learn more about them. Yet regardless of the difficulty of his task, it is the Personnel Manager's responsibility to develop, so far as he can, those Interests in each individual which will cause him to exercise his Capacities to best advantage in the performance of his work. At this point in our discussion, consequently, it is proper for us to direct our attention to the ways in which the Personnel Manager can utilize the instruments and records of his office in creating incentive.

For incentive is the direct appeal to the Interests of the individual.

#### KINDS OF SPECIFIC INCENTIVES

The word immediately summons to our thought the idea of specific rewards for specific kinds and degrees of achieve-



ment. Because we live in an economic world, we naturally think of those rewards as financial in nature. Examples of these are found, as we have stated, in various piece-work plans, in compensation according to task-and-bonus principles, in profit-sharing as an agreement between management and its executive employees, in bonuses of various kinds for excellence in attendance and promptness, for length of service, for special manifestations of cooperation such as that shown in attracting other desirable workers to the company.

These forms of specific incentives all possess merit and undoubtedly can be utilized to increase the quantity and quality of the worker's production through increasing his interest. On the other hand, each is not without its dangers. The principle of piece-work, for instance, must be developed within an organization with especial consideration for the nature of the organization, the character of the people, and the kinds of work. Standards must be developed with the greatest exactitude and with due consideration to the mental and physical welfare of the workers in attempting to attain those standards. Profit-sharing must be worked out in an organization with especial care with respect to the selection of those employees who are to be influenced by it. The futility of applying the principle of profit-sharing to those workers whose efforts have no direct effect upon profits has been pointed out.<sup>1</sup> Bonuses of various kinds must necessarily be so devised that the average successful employee can reap some reward. Otherwise more harm than good may be occasioned through the resentment stirred up through failure to benefit. These specific incentives are, each in its own way, influences for good in promoting interest in one or another phase of the individual's life as an employee.

The Personnel Manager, however, who is concerned with developing interest throughout his organization must necessarily utilize the instruments of personnel administration in developing *a more comprehensive and basic interest* than

<sup>1</sup>*Profit Sharing*, by Burritt, Dennison, Gay, Heilman, and Kendall.

any of these specific interests to which the above specific incentives seem to apply. He is concerned with the creation of that kind of incentive which will permeate the employee's whole life as a worker in the organization and which will consequently manifest its results not only in increased efficiency in one particular department of activity but in *all* departments of the employee's service. It is obvious, therefore, that the most powerful incentive which can be created in an organization exists in the definite tie-up between the individual's performance as a whole and the reward which he is to receive in exchange, both in terms of present compensation and future advancement.

The average manager admits he is highly successful in establishing this kind of tie-up. His policy has always been to "promote on merit alone"—"with due consideration," he adds, "to length of service." Wage scales have been carefully worked out. Each man is paid what his work is worth. What more is there to do?

#### A DIFFERENCE IN VIEWPOINT

As a matter of fact there is frequently a vast gulf between the belief of the manager with respect to these matters and the belief of the workers themselves. We have pointed out that employees demand more than a statement of policy that good men shall be advanced. They demand more than a statement that the individual is compensated according to the value of his services. In most organizations the employees are conscious of the degree to which the particular abilities of individuals are lost sight of through their inability to sell their services or through their hesitancy to appear aggressive. Each grants that, while management may be perfectly sincere in its expressed policy that promotion in pay and position shall be governed solely by merit, management is frequently prevented from making good on such policy by lack of facts. The employee, consequently, feels that the tie-up exists between reward and

the *merit of the individual as management appraises it*, rather than between reward and *merit as it actually exists*.

He sees in many daily incidents apparent evidences of management's failure to possess the true facts. Rewards which seem to be unjustified in his eyes are granted. Employees who seem particularly fitted for preferment are ignored, and so there arises in his mind a doubt, notwithstanding the sincerity of management's professed policies in this respect, of management's ability to make good the tie-up between performance and reward. In consequence, a sense of hopelessness begins to color his mental processes. He feels lost in the shuffle; he is but one of many. He is engaged at work in some obscure position where he has no opportunity to show what he can do. His destiny seems to lie entirely within the control of his immediate boss who at times seems prejudiced against him and at times seems wholly unintelligent in his handling of his men. One blunder on his part and he feels that he has permanently crippled his chances for increased reward. *"It takes a fellow with pull to get ahead here."*

#### INFORMATION AS TO OPPORTUNITY A FACTOR IN INCENTIVE

The effect of such a mental attitude as this on the efforts of the worker is obvious. Consequently, it is management's task to bring to bear upon these errant mental processes the clear white light of correct information as to the ways and means at the company's disposal for making good on its policy of tying-up reward with performance.

There are, of course, several ways in which this information can be imparted. The most logical procedure is, first, that of explaining the personnel technique to the new employee in the personnel department at the time he is engaged. A simple presentation of facts can be prepared so that the information can be given succinctly and in a way to insure complete understanding on the part of the individual and to arouse his personal interest.

It is the custom of many companies to run a series of articles on personnel procedure in their house organs. Articles of this kind lend themselves admirably to illustrations, and the Qualification Cards, Rating Scales, and Promotional Charts make excellent exhibits. It is possible, furthermore, in articles of this kind to inject an inspirational note which will serve as a proper complement to the informational purposes of the article.

Bulletin boards can be utilized in the same way. These possess the virtue of "staying put." The house organs may be mislaid or thrown away, but the bulletin board is always present and offers an excellent means for imparting this kind of knowledge. The Personnel Manager, in following out this procedure, finds it advantageous to ring the changes on the subject matter so presented. One week he may see fit to reproduce a number of typical Occupational Descriptions together with a concise statement of their function and use and of the benefit they contain for the employee. The next week he may decide to present the Qualification Card in much the same way. The third week he may display the Promotional Chart and follow it with an optical demonstration of the Rating Scale. The latter exhibit may conclude its lesson with an invitation to the individual to rate himself and his immediate associates. Another exhibit may have to do with the Mental Alertness Test, pointing out the value of its findings, but necessarily presenting these facts in such a way that the morale of the low scorer will not be impaired. The preparation of these exhibits will be a joy to a person who is inclined by nature to an interest in display and advertising.

Another means employed is that of holding periodic lectures for the benefit of groups of the employees. For instance, a large department store utilizing these methods, arranged groups of meetings for its floor-walkers and explained to them the nature and purposes of the Occupational Descriptions and Qualification Cards. The reaction was amazing. A keener interest than ever before was aroused in the

personnel procedure of the store and the following morning the personnel department was besieged by floor-walkers wanting to see their own records.

A weak link in the personnel administration of many organizations is the fact that management has not imparted to the employees at large a proper conception of the nature and purposes of its personnel technique. Such an understanding on the part of the employees at large is essential to the needed conviction on their part that the company is not only desirous, but equipped and able, to reward strictly according to merit and performance.

A wholesome reaction to a well-developed personnel administration in terms of increased effort, heightened morale, and better performance can only be achieved through such an educational campaign as this, serving to acquaint the employees with the facts.

#### THE TRUE NATURE OF THE QUALIFICATION CARD

The Qualification Card is the individual employee's spokesman in those councils of the management in which his work and advancement are being considered. This is a conception of the Qualification Card diametrically opposed to that frequently entertained by employees when the management has not consciously exerted effort to give them a true idea of its nature. Many employees will bring to the initial interview a sense of resentment that they are being asked questions which seemingly have no direct reference to their work. "What business is it of the management's whether he is married, living in his own house or has dependents?"

Considering everything, it is not surprising that this attitude should exist on the part of those who have not been given the opportunity to understand the purposes of the Qualification Card and the supplementary instruments of personnel administration. Yet if this misunderstanding is allowed to persist, the effect of the Qualification Card as a

source of incentive to the individual is certain to be lost. It is obviously a direct responsibility, consequently, upon the interviewer to *sell* the Qualification Card to the employee and to convince him that it is not a heritage of the Inquisition but rather the doorway to opportunity.

When this fact has been brought home, it will need no further effort on the part of the Personnel Manager to convince the employee of the desirability of making his Qualification Card as eloquent a spokesman as possible. The individual will sense at once the importance of having his Qualification Card speak of him in as favorable terms as the facts permit. It will be apparent to him at once that there is no short-cut to achieve this purpose. The Qualification Card is a summary of him in terms of his Capacities and Interests and performance. The only way he can improve his Qualification Card is to improve himself in those terms.

The Qualification Card is constantly brought up to date, as we have explained, through consultations with the department heads and the supervisors who are immediately superior to the worker in his work, by their periodic reports, by such periodic interviews between the worker and the personnel department as we have described in Chapter XX, and of course by the periodic use of the Rating Scale.

Whereas an employee may formerly have been submerged, the existence and use of these instruments of personnel administration and the presence of these avenues of information make it possible for the Personnel Manager to present him to the management in his true colors. The employee realizes, consequently, that in his Qualification Card the management has index of his performance day-in and day-out as a member of the organization. Any failure on his part to cooperate with his associates, to turn out work of high quality, to achieve the amount of work assigned him, to attain a commendable record in attendance and promptness, to treat his associates with courtesy and good cheer—he is aware that these omissions on his part will serve to

*destroy* the eloquence of his Qualification Card. He becomes aware that in the degree in which he makes good in these respects, in the degree to which he is prompt and regular, in which his workmanship is high, in which he exercises cooperativeness with his associates, in which he possesses knowledge of his work, originality, good judgment; (if he is in a supervisory position: the degree to which he possesses the qualities of leadership, ability to develop his workers and the knack of appreciating the problems of other departments) in the measure in which he achieves these ends, he will know that he is *increasing* the eloquence of his Qualification Card.

#### THE USE OF PERSONAL INSTRUMENTS IN CREATING INCENTIVE

It is obvious, consequently, that when the nature and purposes of personnel administration and its technique have been made clear to the employee, its very existence furnishes a marked incentive which influences him in all departments of his life as a worker in the company.

But the Qualification Card assumes far greater importance as an incentive when utilized by the personnel department and by the departmental chief as the basis for discussions and interviews with him. It is good procedure for the department head or interviewer to lay the card on the table and to discuss its entries one by one and to point out their significance to the employee. If the card shows, for instance, that the employee has no interest in further training, yet is ambitious for promotion, the interviewer has an exceptional opportunity to point out to him the inconsistency between these two facts and to explain to the employee that such promotion as he desires can come only through proper preparation. This obviously brings him to a consideration of the Promotional Chart which will serve to trace the avenues of opportunity opening ahead. It leads naturally to a consideration of the Occupational Descriptions for those

positions, to ascertain the ways in which an employee must necessarily qualify himself if he is to travel those roads to advancement.

The Qualification Card of another employee summoned for interview may show that he rates high in such qualities as Knowledge of his Work and Industriousness, but that he rates low in such personal qualities as Personality and Cooperativeness. The importance of certain qualities, such as these, is frequently lost upon the employee. It is no unusual incident to have an employee express the opinion that it makes no difference what his manner is or how he cooperates "provided he does his work well." He often fails to appreciate that his value as an employee depends to a considerable extent upon the degree to which he cooperates with his associates and inspires friendliness and cooperation on their part, thus facilitating the dispatch of the work of the department. Thus the Rating Scale, in addition to giving point to the employee's efforts at self-development through indicating those qualities which the management regards as important, makes it possible for the interviewer or department head to point out to the employee in specific terms those ways in which he is failing to realize on his Opportunities and to commend him upon those qualities in which he excels. The stimulating effect of an interview of this kind properly carried out is obvious.

The employee who resents consultation of this kind is a rare bird. To be sure, an individual will now and then resent advice of this kind but this is usually the person who is off-side on most things. The average employee is grateful to the executive who will take the time to talk to him frankly. And it is true that the degree to which discouragement exists in many organizations, owing to the lack of a concrete plan of this kind, is beyond all estimate.

The Rating Scale is useful in this respect not only in pointing out the standing of the employee at the moment in terms of certain specific qualities, but in pointing out *the direction in which he is headed*. The fact that ratings are



made periodically, strengthens the value of the Rating Scale as a means of incentive. The fact that an employee is scored C in Quality of Work is significant in itself, but not nearly as significant as the fact that four months previously he scored D or B. If the employee is headed uphill, an opportunity is given to the interviewer or department head to congratulate him on his progress. This serves unfailingly to arouse the feeling in the employee that it is worth while to try, that effort is recognized and success appreciated. If he is headed down-hill the opportunity is offered to sound a warning, a good-natured warning perhaps, but a warning none the less. This serves to convince the employee that any retrogression on his part is apparent to the management. This, of course, constitutes a more delicate problem for the interviewer or department head to handle, one calling for greater tact and for wiser judgment of the individual's probable reactions. One employee showing retrogression will be handled one way, another in another. One will be handled with kid gloves and with a smiling, yet forceful, explanation of what such retrogression means in terms of his future with the company; another will be handled with boxing gloves.

It is obvious from the foregoing that these instruments provide an underlying incentive to all employees, first, through their very existence and the employee's knowledge of their existence, and second, through their intelligent use by the members of the personnel department and by the departmental chiefs.

#### A TYPE OF WORKER WHO WILL NOT RESPOND

There is a certain type of worker to whom the installation of instruments and procedure of this kind makes no appeal. A well-known character in all organizations is that employee who relies upon favoritism and aggressiveness to win him that advancement in pay and position which he cannot win by merit of performance. Any plan which proposes to tie

up reward with actual performance is certain to meet opposition on the part of the bluffer. Instances are known where employees have quit their jobs rather than remain in an organization where one must *work* for his reward. An analysis of these cases shows that the individuals had developed the unfortunate attitude of waiting for dead men's shoes. It is fair to assume that labor turnover of this kind is one of the wholesome results of the effective tie-up of performance and reward.

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## XXIII

### PROCEDURE IN MAKING PERSONAL ADJUSTMENTS

The maintenance of wholesome relationships. Importance of ascertaining maladjustments before they become serious. Where Capacity, Interest, or Opportunity is lacking. Some maladjustments difficult to recognize. Need for judgment in adjustment.

THE several phases of personnel administration are so interrelated that, regardless of chapter headings, it is impossible to partition off one activity and discuss it by itself. This fact will already have become apparent to the reader. Chapters V, VI, and VII furnish a skeleton outline of procedure in a well-organized personnel department. Chapters VIII to XIX inclusive have to do with that same procedure in greater detail, particularly in treating methods and technique in their relation to purposes and results. As we have proceeded to discuss each part of the program, we have found ourselves discussing other parts, separate yet related. In progressing through these chapters we have, as it were, developed our sources of labor supply, examined, tested, and selected our worker, integrated him with his work, kept in intimate "follow-up" contact with him, given him that kind of training which will increase his interests. In a manner of speaking, consequently, we have now established the worker satisfactorily in his work and integrated him into the organization as an established member.

#### THE MAINTENANCE OF WHOLESOME RELATIONSHIPS

It would seem, consequently, that our task of creating the worker-in-his-work unit is completed. In one sense this

is true. Certainly we have advanced to the point where our problem becomes that of maintaining the worker-in-his-work unit rather than that of creating it in the first place. A review of earlier chapters will reveal to us anew that the maintenance of a high standard of effectiveness on the part of the workers is continuously a *creative* function, as it involves the destruction of outworn worker-in-his-work units and the construction of new ones. Thus there may arise in the maintenance of the individual as an effective worker, a series of progressive worker-in-his-work units through all of which *the worker is the same individual*.

It has been pointed out that personnel administration is primarily the maintaining of proper relationships between the worker and his work in terms of Capacities, Interests, and Opportunities. Because the personnel situation within any company is fluid, this problem of maintaining the worker-in-his-work units is one which calls for unceasing vigilance on the part of the Personnel Manager. For maladjustments are certain to arise. Elements of discord or faulty coordination between the Capacities and Interests of the worker on the one hand and the Opportunities and requirements of the work on the other manifest themselves here and there and tend to destroy efficiency. These maladjustments are often a wholesome sign of growth and progress. They are growing pains of the organization. Where they occur, in reason of course, development is taking place, usually of a wholesome nature. The workers are growing in Capacity and in Interest; the positions themselves are growing in difficulty and responsibility. It is management's obligation to keep the organization as free as possible from such maladjustments, to correct them so far as possible when they arise, to anticipate them if possible. Without adequate technique, however, such as we have described in the preceding chapters, it is impossible for management to visualize maladjustments and prospective maladjustments in this way. Without such technique, management does not become aware of such maladjustments

until they become glaring flaws in the fabric of the organization.

THE IMPORTANCE OF ASCERTAINING MALADJUSTMENTS  
BEFORE THEY BECOME SERIOUS

To employ a crude simile, the householder attaches a thermostat to his furnace in the cellar. Previously he wore out the cellar stairs in his peregrinations furnaceward to shut off the draft when it became uncomfortably warm through the house and to open the draft when it became uncomfortably cold. The thermostat now relieves him of the necessity for doing so. It is on constant watch. It knows when the temperature is one degree above normal and immediately shuts the draft; it knows when the temperature is one degree below and instantly opens the draft.

Similarly, the Personnel Manager in a business or industrial organization requires a thermostat to help control the adjustments through the organization. He possesses this thermostat in the form of the personnel technique which has been outlined, particularly the instrument we have defined as the Personnel Control Chart in Chapter XVII. It is the function of this chart to indicate those individuals in the organization who are not properly adjusted to their work in terms of Capacities, Interests, and Opportunities, as soon as such maladjustment begins to exist, rather than afterward when it has become glaringly apparent through inefficiency, restlessness, or disaffection. Thus, in a personnel sense, it serves to point out needed readjustments before the need becomes serious, just as the thermostat controls the temperature in the house before it becomes uncomfortable.

On page 18, in Chapter I, we presented a graph showing a worker-in-his-work unit which is effective because a proper balance has been established between the Capacities and the Interests of the worker on the one hand and the Opportunities of the work on the other. The worker possesses the general qualifications and special abilities needed in his

work; the performance of its duties is not impaired because the worker lacks in any degree at all the particular abilities required for its efficient execution. He is imbued with those interests which inspire him to exercise those abilities most effectively in performing it. He is temperamentally in tune with his work and he goes at it hammer and tongs, not because he is paid to do so, but because he enjoys it and because there are no factors of fear and discouragement, arising from any cause whatever which distracts from the resultant zeal for action.

The work, reciprocally, draws upon the worker for those kinds of Capacity and ability which he possesses and gives him full opportunity to exercise them. It offers him the opportunity to give vent to his Interests. Thus the work and the worker are complementary, each giving what the other demands and taking what the other gives. When this reciprocation approaches 100%, we can think of the worker-in-his-work unit as perfectly balanced and as effective in the work of the organization as a whole as it is possible for it to be.

The Personnel Manager's objective is to develop and maintain this kind of relationship between the workers and their work throughout the organization.

#### WHERE CAPACITY IS LACKING

But the influences which are at work to undermine this happy balance are numerous, and often insidious. Through faulty selection, for instance, or through increase in the difficulty and responsibility of the work or through retrogression on the part of the worker, the Personnel Manager frequently finds worker-in-his-work units of this kind in which Capacity fails to keep pace with Interest and Opportunity. Everyone is aware, for instance, of the individual who has been assigned to a good job and who is interested in it, but who lacks some special ability or other which is necessary in its

proper performance. This worker-in-his-work unit has been shown in Figure 2, on page 29.

The man referred to there as engaged for service work in the installation of gasoline engines and electric motors is a typical example of a worker-in-his-work unit in which Capacity has failed to balance Interest and Opportunity.

An individual may lack Capacity in any one of a number of ways. Like the man in our illustration, he may not possess the skill required, for instance, in the work as specified in the Occupational Description for the position; he may lack the needed training; he may not be adequately equipped in basic education; he may lack those physical qualities of strength, height, weight, eyesight, agility, which are important in many positions, both in office and shop; he may lack such personal qualities as appearance and manner, leadership, initiative, judgment, cooperativeness, industriousness—such qualities as are brought into the light by the Rating Scale.

In certain positions, of course, several of these Capacities which we have summarized briefly here may be entirely unimportant. In the case of the common laborer, for instance, the emphasis would lie almost entirely in a consideration of strength and weight; whereas, in the case of a watchmaker these factors would not be present at all, but the emphasis would lie upon skill and eyesight. Each instance naturally requires a consideration of the degree to which the worker possesses those specific Capacities set forth as necessary in the Occupational Description for the position.

#### WHEN INTEREST IS LACKING

A second kind of improper balance between these three elements of Capacities, Interests, and Opportunities is found in the case of the worker who is seemingly well qualified for his work in terms of Capacities and who is engaged in work which affords ample exercise of those Capacities, but who is not interested in his work. See Figure 4 in Chapter II.

As has been stated, relatively little is known of the Interests or motives which impel persons to do this or to do that. When science has furnished industry with the means of recognizing and harnessing these now intangible forces, tremendous strides will be taken toward industrial efficiency. It is apparent even to us today, however, that there are two kinds of faulty interest. In the first place, there is that lack of direct personal interest in the work of which everyone is conscious in the contemplation of certain uncongenial tasks. We know that one person is primarily interested in tinkering with tools, and that another person does not know a hatchet from a saw and does not want to, but loves to meet and talk with people. This is a crude instance of direct personal interest. Obviously if the Personnel Manager had these two persons to choose from for a position in the carpenter shop he would, *all other things being equal*, choose the former, not the latter, for the job, he would choose the latter, not the former, for a position on the sales force.

In his book of fascinating war cartoons, Captain Bairnsfather, of the British Army, pictures a spindle-shanked, woe-begone looking rookie who is haled before his captain by the sergeant. The captain is looking him over quizzically. "What's the matter with him, sergeant?" "I dunno, Captain, all 'e has to do is to walk around the camp grounds all day with a sharp stick and pick up scraps of paper and cigarette butts, *but 'e don't seem to 'ave 'is 'eart in 'is work.*"

Grotesque as Captain Bairnsfather's sketch is, it is unhappily characteristic of a large proportion of business and industrial workers who, through imperfect personnel administration, are improperly adjusted to their work in terms of Interest. Who will venture to estimate the loss to industry and to society residing in this kind of maladjustment?

But there is a lack of interest of a more indirect character. The individual may be interested in his work in the sense in which we have been speaking, but he may be wholly dis-



couraged and oppressed, nevertheless. In this case we look for an outside factor; something is at work to neutralize this positive interest of his in his work. His working environment may be unfavorable, for instance. The physical working condition under which he is employed may be such as to destroy enthusiasm on his part. His relation with his fellow employees may be charged with friction. The supervision under which he works may be at fault; his boss may handle him in the wrong way; it may be that his superior is bringing discipline to bear upon the worker when he should bring incentive. Home conditions may be unfavorable; ill health and discord within the home may send him to his job full of anxiety and worry—major enemies of efficiency. It is not possible for fear and enthusiasm to reside within the same person.

There may be any one of a horde of possible personal reasons which are tending to paralyze the worker's Interest. He may, for instance, be in debt and see no way out. Again ill health may be found to be the hidden cause of low Interest. This is not infrequently the case where Interest suddenly begins to decline.

#### WHERE OPPORTUNITY IS LACKING

In the third place, improper balance can exist, (as we have already pointed out), between the three primary elements in the worker-in-his-work unit through the failure of the work itself to yield adequate Opportunity for the exercise of the worker's Capacities, for the satisfaction of his Interests, or in the case of the normal worker, for growth. See Figure 3 in Chapter II.

This kind of improper balance is due at times to a change in the nature of the duties or to a shifting of certain important functions and responsibilities to someone else, leaving the position stripped of its more desirable characteristics. But far more frequently the employee outgrows his job through conscious training and assimilation of knowl-

edge, or by unconscious growth he acquires added Capacities and enlarges his range of Interest to such a degree that the position to which he has been assigned fails to furnish the outlet for them. Maladjustments of this kind are present throughout all organizations, but, as indicated above, they fail to make themselves known until the damage has been done, until production has been wasted or the worker has quit in search of a job elsewhere. In order to prevent the maladjustments in his organization from approaching this degree of seriousness, the Personnel Manager makes use of "a thermostat" in the form of the Personnel Control Chart as described in Chapter XVII.

#### THE COLOR CODE APPLIED TO THE PERSONNEL CONTROL BOARD

Whenever an employee is found to be improperly adjusted to his work in the terms in which we have been speaking (through a follow-up, or through report from the department head or foreman, or through a periodic rating, or through observation on the part of the Personnel Manager and his assistants), the color of the pin representing the individual on the Personnel Control Chart is changed to indicate the nature of the maladjustment. Where this maladjustment exists through the failure of the work to provide the necessary Opportunity for the worker, a white or gray pin is substituted respectively for the red or green pin which formerly represented the worker.<sup>1</sup> This indicates that the worker is "bigger" than his job, that he has outgrown it. The white and gray pins are danger flags calling aloud to the Personnel Manager that the individual's Capacities and Interests are being wasted in his present work and that unless some adjustment is made, there is every probability that the worker will quit and seek his opportunity elsewhere. Where maladjustment exists through the failure of the worker to possess the Capacities and Interests needed in the proper performance of the work, the red pin is re-

<sup>1</sup> The colors, of course, are optional.

placed by a blue pin or the green pin by a brown pin. These blue and brown pins, consequently, flag the attention of the Personnel Manager and remind him that unless adjustment is made here the inefficiency resulting from this improper balance will continue to threaten production.

#### SOME MALADJUSTMENTS DIFFICULT TO RECOGNIZE

Obviously there are many variations in adjustment which cannot be revealed by the Personnel Control Chart. Even the methods employed to bring the information to the Personnel Control Board cannot take cognizance of those secret processes of mind which contain evil possibilities but which, nevertheless, have not manifested themselves in conduct and performance capable of objective observation. There are many mental and physical maladjustments of which even the worker's immediate superior is not cognizant. It is true, however, that in a degree not attained previously, the Personnel Control Chart reveals to the Personnel Manager the maladjustments existing through the organization in a degree otherwise impossible of attainment and makes possible a conscious control over these relationships which, properly exercised, will make for increased stability, satisfaction, efficiency, and productiveness.

The visitor to one of the central telephone exchanges will find the keenest delight in watching the operation of the individual switchboard. During the quiet hours of the night only an occasional light will blink from the board calling for the attention of the operator, but during the busy hours of the day the lights will be flashing at the operator like fireflies on a summer's eve. Each light indicates a faulty adjustment—a lack of a “proper tie-up” between a person who wants to speak and the person he wants to speak to. It is the job of the operator to bring these two persons into contact as rapidly as possible. At such times the visitor will gaze with admiration at the dexterity and accuracy of the flying fingers of the operator.

The Personnel Control Chart is the Personnel Manager's switchboard. Every white, blue, gray, and brown pin is to him what the flashing light is to the telephone operator. It is the danger signal of an improper adjustment. It is his responsibility, through making proper readjustments, to transform each of those pins into either a red or a green one at the earliest possible moment.

As to the *how* of making these adjustments, this lies beyond the field of the Personnel Control Chart. The Control Chart indicates the dangerous points. It is the Personnel Manager's task to apply the remedy.

#### NEED FOR JUDGMENT IN ADJUSTMENT

What the remedy is to be in each case depends, of course, upon the nature of the maladjustment and upon the many factors pertaining both to the worker and to the work. This calls for the utmost of good judgment on the Personnel Manager's part, based in turn upon actual facts as revealed by the Qualification Card, by the Occupational Description, by the Personnel Manager's knowledge of the department, of the work, and of the supervision, his knowledge of the individual employee's personal proclivities and weaknesses, the employee's interests and his habits, his home conditions, his status in the social life of the employees.

The Personnel Manager finds in one case, for instance, that the management has been delinquent in granting the employee the salary increase to which he is properly entitled. This is an oversight of which management should not be guilty. But even management, we know, can make mistakes. The remedy in such an instance is clearly obvious. He finds in another instance that the trouble arises out of the conflict of two personalities, that of the worker and that of his supervisor. Conflicts of personality of this kind are not rare. They may be inexcusable according to the hard logic of management but they are very real, nevertheless, and they exercise a tremendous influence sometimes upon

the mental attitude and efficiency of the workers. In such a case the Personnel Manager does what is necessary to change this supervision, perhaps to change the employee from this department to another department, or to another group within the same department where he will report to someone else.

He finds that another employee has been developing his abilities through study and that he has really attained a degree of knowledge and skill qualifying him for higher responsibilities and compensation. The maladjustment, therefore, belongs to the third group of those we have discussed above. The logical selection here seems to lie in a course of action which will at the earliest possible moment promote the worker to the position for which his increased Capacities now qualify him. If such promotion is not now possible through the lack of such a higher vacancy, the Personnel Manager naturally takes the worker into his confidence in order that the worker will *know* that management intends to do the proper thing by him in accordance with his increased Capacities as soon as the opportunity presents itself.

Again, the Personnel Manager finds that, regardless of careful selection, the worker does not possess those Capacities and Interests which are required in the work to which he has been assigned. The adjustment here may be one of several kinds, depending upon the careful analysis of all the facts by the Personnel Manager. The remedy may be found in transferring the worker to other work for which he seems better qualified. It may be found in giving him a course of training which will serve to correct those inadequacies in his mental equipment which serve to render him only fractionally effective on the work at which he is engaged. It may be found in encouraging the worker to undergo such medical treatment as will correct physical inadequacies; it is no unusual incident, for instance, for a worker engaged on fine work to become less and less efficient through impaired eyesight capable of correction through glasses, nor is it unusual for a worker engaged at work involving ner-

vous strain to become less and less efficient through becoming physically run down.

The Personnel Manager finds that still another worker is under some delusion of a purely imaginary nature with reference to the management's attitude toward him, with reference to the Opportunities for advancement, with reference to the company's salary policy, with reference to the Opportunities of his work. No major operation is required here. What is needed is that the Personnel Manager, speaking for the management, shall set the employee straight on these matters in which he has been misinformed. Where a grievance is imaginary, the remedy is not in adjustment but in information.

The Personnel Manager finds that anxieties of a personal nature are at the root of another employee's failing efficiency. Sickness may have invaded his home. He may be in debt. Troubles of one kind or another may threaten which he, single-handed, is not prepared to combat. The truly efficient Personnel Manager is prepared, both in a personal and material sense, to render assistance to individuals within the organization who are harassed by troubles of this kind. And the solution for maladjustments of this kind is ordinarily capable of achievement through sincere and intelligent cooperation with the worker.

Thus the well-developed personnel department keeps at its finger tips information with reference to the individuals within its organization who constitute strong spots and weak spots in its personnel and brings to bear upon them that kind of intelligent and well-thought-out action which serves to restore so far as possible in each case the proper balance of Capacities, Interests, and Opportunities.

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## XXIV

### THE USE OF PERSONNEL INSTRUMENTS IN SALARY CONTROL

Difficulties involved in salary control. The occupational budget. The function of the Personnel Control Chart in salary control. Determination of salary ranges. Procedure in changing individual rates.

THERE is a certain kinship between the technique of discovering and remedying weak spots in the organization and the technique of maintaining a balanced salary situation throughout the organization. The control and distribution of wage expenditure plays a part of vital importance both in the economic soundness of the institution itself and in the wholesomeness of the relationships between the workers and their work.

So far as the former is concerned, the ideal situation is one in which the payroll lies safely within the budget. Each department's wage expenditure is proportionate to the service it renders. The salary or wage paid to each individual is adjusted accurately to the importance of his work and to the effectiveness with which he performs it.

#### THE DIFFICULTIES INVOLVED IN SALARY CONTROL

It is extremely difficult in actual operation to achieve this kind of balance in the wage program of a company.

In the first place, pressure is constantly being exerted from below by executives, supervisors, employees. Unrestrained or uncontrolled, this pressure would serve in short order to boost the wage expenditure of the company over the funds available for the payroll. And not only that. It would result in glaring injustices, for the rewards which



belong properly to the efficient workers would be granted instead to those who could "press" the hardest.

Of course, where a departmental budget system is in effect, a counter-influence serves to offset, at least in part, this constant pressure from below. On this basis, if a given department threatens to exceed the budget allowed it, the department head is immediately thrown on the defensive and compelled to explain the reasons for the threatened departmental deficit. Furthermore he feels that the economical administration of his department will give him credit in the eyes of the higher command. This feeling in itself is not an unwholesome influence, provided the executive interprets the word "economical" in its true sense as implying *the ratio between expense and departmental output* rather than having to do solely with expense.

It is surprising to what extent this misapprehension of the word exists on the part of departmental managers. In an effort to keep his departmental expenses down he vetoes increases for deserving employees. The ultimate result of such a policy is to waste money rather than to save it, through destroying the morale and efficiency of the members of the department. An investment in increased salaries, granted wisely, is frequently the best remedy for a department which is running at a loss.

There is, however, need for yet another influence to combat this incessant pressure from below. In the average organization this influence is exercised by a Salary Committee or other rate-setting agency which is in a position to visualize the salary situation of the company as a whole, to see the relative value and effectiveness of the several departments and to appreciate their particular problems. This broader viewpoint is automatically denied the department head whose jurisdiction extends only to his own department. He does not have the opportunity to weigh the situation within his department with that existing within other departments. If he is worth his salt, he is inclined to feel that his department is one of the most important depart-

ments in the company—whether it is or not. This loyalty to his people, this pride of his own organization very naturally leads him to seek monetary rewards for them which seem justified in the light of his departmental vision, but which are not justified when the merits and needs of all the other departments are considered as a whole.

#### THE OCCUPATIONAL BUDGET

A second difficulty which exists in maintaining a balanced wage-expenditure situation throughout a company is that which is concerned in maintaining an *occupational budget*. The performance of each kind of work in an organization is worth a certain amount of money. What this estimated total is in the case of each occupation is difficult to ascertain. The performance of each kind of work *actually costs* a certain amount of money; it is usually difficult to determine this actual cost. If there is an approximate coincidence between the worth and the cost, then from an occupational standpoint a proper balance exists in the wage scale. This important fact is frequently lost sight of by management, owing principally to the apparent difficulty of obtaining the necessary information. Yet, without the means of maintaining this balance it is almost unavoidable for a situation of unbalance to arise in which the employees performing one kind of work will receive in the aggregate more than it is worth, and employees engaged in another kind of work will receive less.

In our chapter on Incentive, emphasis was brought to bear upon the importance of establishing a direct tie-up between performance and reward. In this balance between the individual's value to his company and the reward he receives from his company lie, in the first place, economic justice and, in the second place, a powerful incentive to all members of the organization to excel in their work.

Many managers confess, quite innocently, that they have solved this problem. As a matter of fact, however, it has

never been solved perfectly and, in the great majority of companies, there are serious inconsistencies in the wage scale which are often far more apparent to the employees in the ranks than to the department heads and officers.

#### THE LACK OF PROPER METHODS

The difficulty of establishing a faithful tie-up between performance and reward lies in large part in the method or lack of method employed to ascertain and to know the value of the individual's performance. Reliance must necessarily be placed in large part upon the department head and supervisor to furnish this information. Department heads and supervisors are human and their judgment which is based usually upon personal observation is not unfailingly accurate. Like all of us, they are influenced to admiration by the spectacular rather than by the quietly efficient. Like all of us, they have their likes and dislikes and, although they attempt to be unbiased in their judgments, these likes and dislikes undoubtedly influence their opinions and recommendations. Yet another difficulty in establishing this tie-up lies in the fact that some individuals are aggressive and some are not and that frequently there is no relationship between aggressiveness and efficiency. Some persons are good salesmen; their goods may be of mediocre quality but this they offset with a pleasing manner and a persuasive tongue. And, on the other hand, as we all know, there are many persons incapable of selling a dollar for 49 cents. These differences in temperament, in aggressiveness, in the ability to sell oneself, all contribute—where proper methods do not exist—to a lack of balance in the tie-up between performance and reward.

Then there is the aggressive department head. He possesses in unusual degree that commendable loyalty to his people which prompts him to take a belligerent stand with reference to salary increases for them. The perfect organization will not be influenced by belligerency of this kind.

But here again the human element enters; we find that almost inevitably the Salary Committee will yield more often to the department head who is aggressive in the defense of his recommendations rather than to the department head who defends his with less ardor.

#### THE LACK OF "TIME" TO ANALYZE RECOMMENDATIONS

Yet another thing which tends to render more difficult the task of maintaining this tie-up between performance and reward is the mechanical difficulty of giving exhaustive study to the factors entering into each recommendation for salary increase. The president of one company made it a practice to receive his department heads every two weeks in order to consider recommendations for increases in salary for the members of their departments. These recommendations were sent to him in advance and were prepared in tabular form in alphabetical order by his secretary. At the appointed hour the department heads would convene in the president's office and the president and they would proceed to consider in turn each of the employees named on the list. The pros and cons in the case of those employees whose names appeared high on the list would be carefully analyzed and discussed, and intelligent action would be taken so far as it was possible with the absence of proper instruments of personnel control. When after a half-hour, however, it was found that only four employees had been considered and that thirty remained to be discussed, the degree of care with which the recommendations were considered would begin to relax. At the end of an hour, fourteen had been considered and action taken. At that time, the president would suddenly recall an important engagement. Looking over the entire list with an air of despair, he would draw a line across the page midway down the sheet and say impatiently, "Well! Well! I can't give this any more time now. Let's grant the recommended increases for the em-

ployees down to this point. We'll take up the others next time."

Do not be skeptical of the degree to which this is current practice. To be sure, as it is here described, it seems a gross miscarriage of justice and so it is. In this particular company, it was a misfortune to be named West or Wilson. The Bartholomews and the Carharts had a distinct advantage. Yet in many companies the process of setting wage rates and of granting salary increases is little more than a farce of this nature. Without proper instruments, it is very difficult in fact to avoid rule-of-thumb procedure of this kind and because of this difficulty many concerns adopt the practice of granting salary increases periodically to those employees whose performance *has not been unsatisfactory*. The inevitable consequence of this is that the determining factor in wage increases becomes length of service rather than efficiency in the work. Thus the tie-up between performance and reward becomes relatively remote.

The importance of establishing a balanced wage situation within an organization has brought executive attention to bear upon the problem to a greater degree recently than had been the case in former years. The instruments which have been described in this book are of extreme value in maintaining this wage balance, and it is our object at this point to discuss the use of these instruments in this connection.

#### WHEN ACTION MUST BE TAKEN

The salary rightfully paid to an employee depends upon two things:

(a) The value of the work in which he is engaged as represented by a salary range.

(b) The effectiveness of the individual's performance of that work as expressed by his proper locus on the Personnel Control Chart within that salary range.

Now consideration must be given to salary range and individual rate:

(a) When the development of the work makes it necessary to create a new occupation or to extend an occupation to a department in which it does not now exist.

(b) When it is proposed to change the minimum or maximum rates for an occupation (its salary range) in order to maintain a proper balance with the ranges for other kinds of work or in order to accommodate changes in duties and responsibilities involved in the occupation or in order to take cognizance of the changes in cost of living and supply of labor, and so on.

(c) When it is proposed to change the rate of pay of an individual employee within his occupation as a result of demonstrated efficiency or demonstrated inefficiency.

(d) When it is proposed to transfer the employee to the same occupation in another department.

(e) When it is proposed to transfer or promote him to another occupation in the same department or in another department.

#### THE FUNCTION OF THE PERSONNEL CONTROL CHART

As has been already explained in previous chapters, the Personnel Control Chart portrays graphically the salary minima and maxima for the various occupations and the salary paid to each employee in those occupations. See page 317. This instrument serves to reveal (in a degree quite impossible otherwise) the relationship existing between the worker and his salary, between his rate of pay and the maximum rate of pay he can hope to enjoy on his present work, between his rate of pay and those of other employees on identical and similar work. Thus it places in the hands of the Personnel Manager and the Salary Committee a vast fund of information which is essential to management in maintaining the proper balance throughout the salary scale.

In no manner, however, does the use of these instruments detract from the importance of the department head and his executive assistants as factors in wage control. We have frequently pointed out that personnel work, to be truly effective, must be personal and that there is nothing that can take the place of the executive's personal knowledge of the qualifications, attitudes, interests, and performance of the persons under him. The executive knows the worker in his work in a way in which the Personnel Manager and the Salary Committee never can know him. The function of the Personnel Manager or Salary Committee, on the other hand, is to receive this information from the departmental executive and to pass upon his recommendations, not only from the point of view of their actual worth, but from the point of view of their effect upon the salary budget of the company as a whole and upon the salary balance which should exist throughout the organization as a whole.

The salary committee is in a position to exercise this kind of control and to act intelligently upon such wage recommendations by virtue of the knowledge of the personnel situation throughout the company made available to it through the Personnel Control Chart supplemented by the Occupational Descriptions of the work and the Qualification Cards of the worker and, of course, by such supplementary instruments as Rating Scales, Tests, and so forth. Referring back, then, for a moment to Chapter IX, it is apparent that when a new occupation is created, the first step lies in the construction of the Occupational Description by the Personnel Department. Through this instrument, the Salary Committee is made conversant with the facts pertaining to the duties involved and the Capacities required in the employee. Through such a method as we have described in Chapter IX, the important factors existing in the occupation are evaluated. These factors are weighed carefully, both in an absolute sense to determine their actual value and in a relative sense to determine the proper place of the proposed occupation in the family of occupations. Thus, with the

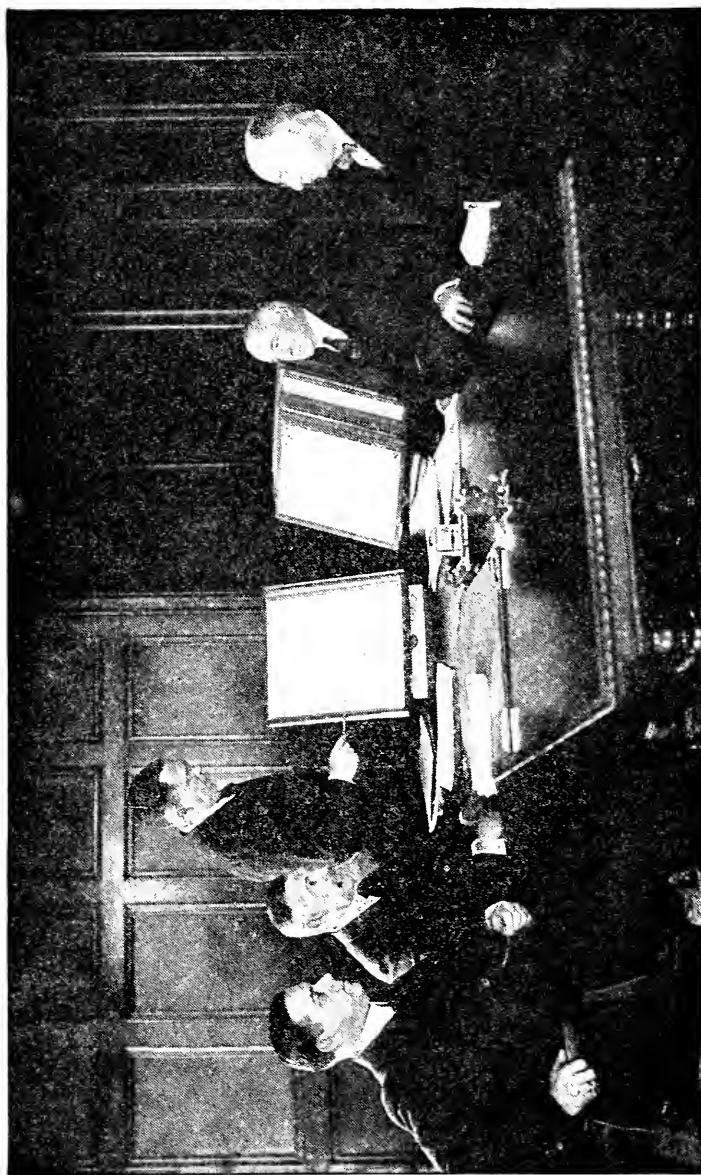


Figure 67: Management's use of Personnel Control Charts in conference on wage adjustments



facts at its disposal, the Salary Committee is in a position to exercise good judgment in setting the minimum and maximum rates for the occupation. It will not be influenced, as is so often the case, solely by a consideration of the labor market and what the company must pay to get a person to do the work. There is no mechanical or mathematical method of setting these minima and maxima. Any attempt to employ a method of this kind is certain to prove misleading. The problem does not lend itself to that kind of adjustment. It is impossible to evaluate such factors as must be considered in mathematical terms and to arrive at a total evaluation by the process of addition. In one position, one quality will outweigh another; in another position this importance may be reversed. This calls for judgment and it is in judgment, consequently, reinforced by facts, that industry has found generally the solution of this problem lies.

When, for any reason, it is desirable to change the minimum and maximum for any position, a similar procedure is followed. The Occupational Description, already drafted, is checked to make sure it reflects the facts of the occupation as they now exist and by a similar exercise of judgment, changes are made as the facts warrant.

Various reasons will arise for the revision of salary ranges. One of the most current is that of the difficulty of getting new people to work at the minimum already established. Labor may be scarce, the current rates in nearby companies for work of similar nature may be high, or the Personnel Department may discover through its analysis of labor turnover that too high a proportion of persons are leaving from a given occupation for reasons that have to do with lack of opportunity for advancement in pay. The maximum may not be high enough (Chapter XXVI). Or again the Personnel Department may discover that it is costing too much or too little to get the work done; the occupational budget may be too high or too low. Here again the need for readjustment asserts itself.

In the case of one company, for instance, the following facts are considered in the determination of its salary range for each occupation:

1. Each extremity represents well-considered opinion regarding the utmost and least value of the occupation to the Company in comparison with other occupations (*a*) within the department, (*b*) regardless of department
2. Supply and demand
3. The degree of personal responsibility involved, i. e., importance of decisions made
4. Seriousness of errors
5. Degree of supervision involved
6. Personal qualities required, e. g., in dealing directly with customers
7. Special circumstances, e. g., provision for incapacity due to service or age
8. The establishment of a minimum rate involves the acceptance of the rate now prevailing in the Company, except as modified by the seven principles already enumerated and the following special points:
  - (*a*) The smallest amount of technical knowledge required for proper performance of the duties of the occupation
  - (*b*) General education required
  - (*c*) Length of "learning period," i. e., time required for initiation into a position where the elementary duties may be performed without constant or frequent supervision
  - (*d*) The minimum for women may be lower than for men in the same occupation, due to the expectancy of shorter tenure
  - (*e*) Length of time it is advisable that the person be an employee of the Company before being assigned to the occupation

It will be observed that "length of service" is not included here as a factor to be considered in determining rates of pay. Many companies do so consider it, but it is coming to be recognized in greater and greater degree that length of service itself is not a proper factor, except as through length of service, Capacity and Interest are increased.

The kind of adjustment, however, which arises most frequently is that which has to do with the individual rates of pay.

#### PROCEDURE IN CHANGING INDIVIDUAL RATES

Conditions are continually arising which make it necessary to consider increasing the pay of individual employees. Let us suppose that the employee has progressed steadily in value and effectiveness since his last wage increase. He is capable of greater individual output than formerly. He is given work involving greater responsibility. He develops attributes of character which exercise increasingly a wholesome stabilizing effect upon his associates. The supervisor or department head is aware of such developments in the individual before anyone else in the organization. This is natural owing to his daily contact with the worker. The initiative for the increase, consequently, ordinarily comes from the department itself. The group head or sub-executive has discussed the employee with his department head, and together, in all probability, they have agreed that his salary rate should be increased by a given amount. This decision reached, the department head communicates the recommendation to the Salary Committee. A form such as that shown in Figure 68 is used for the purpose.

Here the department head gives the name and clock number of the employee, the occupation to which he is assigned, his present salary and the salary it is recommended he be allowed, and the department head's reasons for the recommendation.

<b>To the Salary Committee:</b>	
It is recommended that the salary of	
_____ Number _____	employed as
_____	be increased from \$ _____ (present wage)
to \$ _____	This increase to take effect
_____ (date).	
Reasons _____	
_____	
_____	
Department Manager	

Figure 68: Specimen form for recommendation of salary increase

This increase blank is sent to the Personnel Department for consideration at the next meeting of the Salary Committee. In the Personnel Department, the Qualification Card for the individual is withdrawn from file and the Occupational Description for his position, showing the facts bearing on the situation. Then the Personnel Manager reaches his own decision as to whether the recommendation is justified. Here the periodic ratings assume great importance. The Personnel Manager is concerned with the employee's standing in each of the qualities provided for in the Rating Scale. He is even more concerned in the degree of improvement or lack of improvement shown by the employee in these qualities during recent months. He considers the employee's education, his special training, the efforts he is making personally to acquire further training in his work. Similarly, the Personnel Manager has reference to the Personnel Control Chart and identifies the colored pin which represents the employee. He visualizes the effect the proposed increase would have upon the other employees in the same group and in allied work throughout the organization.

If his reasoning leads him to agree with the department head's recommendation, he sets the recommendation aside for reference to the Salary Committee together with the Qualification Card and Occupational Description for the

position. If his judgment does not agree with the recommendation of the department head, he arranges a conference with that executive at the earliest possible moment and points out the grounds on which his disagreement seems to rest. In this conference, the likelihood of the departmental chief and the Personnel Manager coming to an agreement is great. At least they have the opportunity to see and to weigh each other's reasons. If they reach an agreement, their joint recommendation is then set aside, as stated above, for the consideration of the Salary Committee.

If, on the other hand, it is impossible for the Personnel Manager to establish an agreement with the department head, it is customarily the practice for the Personnel Manager to submit the department head's recommendation to the Salary Committee but to present with it a memorandum of his own opinion on the subject.

The Salary Committee ordinarily meets periodically and takes up one by one the recommendations which have been received since the last meeting. Where there is no difference of opinion between the department head and the Personnel Manager the committee ordinarily takes action accordingly, except, of course, where discussion may disclose some unseen factor which seems to reverse the combined judgment of these two executives. Where the recommendation is thus unanimous, the Salary Committee is governed largely by the facts yielded by the Personnel Control Chart. If the employee's pin is below the median line for the occupation, the committee will have less hesitancy in granting the proposed increase. If, on the other hand, it is above the median line, the committee will demand evidence of especial merit on the part of the employee.

The reason for this is obvious. If the majority of the pins representing employees in a given occupation are above the median line, the performance of that work is costing the company too much; the occupational budget is being exceeded. If, on the other hand, the majority of pins are below the median line, it is a sign that the cost of doing

the work is below the estimated budget. In this case, the Salary Committee can afford to be more lenient in its judgments.

Where there is a difference of opinion between the Personnel Manager and the department chief, the Salary Committee considers the arguments of both sides of the case. Because the Personnel Manager is in a staff position and has the opportunity, consequently, of visualizing the situation throughout the company as a whole, it is probable that the Salary Committee's decision will coincide with his judgment rather than with that of the department head. This is not necessarily a foregone conclusion, however, and where differences of opinion of this kind exist, it is the practice of the Salary Committee to summon the department chief to present and defend his reasons. Similarly it calls upon the Personnel Manager to defend and present *his* reasons, and reaches its decision as to the advisability of granting the increase in whole or in part according to its judicial appraisal of all the facts so brought out.

It should be pointed out here that great importance is necessarily attached to the manner in which the increase is granted. Some companies seek to avoid at all costs the development of a situation in which the employee has to request a salary increase to which he is entitled by excellence of performance. One manager says that his company is seriously at fault if an employee has to ask for a deserved increase.

The soundness of this contention will become apparent on a moment's consideration. If management claims that it has established a tie-up between performance and reward, it is quite out of order that the employee should have to ask for an increase if the increase is properly due him. The fact that, in order to get it, the employee has to ask for it is a flat denial that such a tie-up exists. The company will have a hard time convincing its workers that its personnel control is operating as it claims if the initiative must rest with the employee to get what is rightfully coming to him.

Then consider for a moment the effect of the salary increase itself upon the worker—quite apart from its implication of reliability or unreliability on the part of the company's wage-setting procedure. Here we deal with some very elemental reactions. The worker who waits for an increase in pay, then has to ask for it, has the feeling almost inevitably that he made the company come through with what was due him. The fact that "he made the company come through" strikes from the transaction all that inspiration to excel in his work in even greater degree in the future which always results from the wage increase properly handled. He goes on with his work, but he does so with a feeling that his efforts have not been appreciated, sometimes with an ill-defined sense of grievance against the management.

On the other hand, if the management beats him to it, if in recognition of his good work the management increases his salary on its own initiative without any request on his part, the psychological effect on the worker is unfailingly stimulating. He attacks his work with renewed zeal, confident that the management is cognizant of his efforts—and management, as well as the worker, reaps the rewards.

When a wage increase is voted an employee, a splendid opportunity is offered management to stimulate the factor of Interest. Some concerns make the mistake of letting the employee find it out for himself "in the pay envelope." This is undoubtedly the easiest way. It is also a wasteful way. The employee will react favorably, it is true, but not in the measure he will if the boss calls him in, congratulates him on the good work he has been doing, thanks him for his part in the success of the department and tells him man to man that his salary is to be increased "from now on" to such-and-such higher figure. This is intelligent, constructive personal work which takes cognizance of the elementary desire we all have for a personal acknowledgment of our work together with the impersonal increase in pay.

This principle holds good throughout, whether we are speaking of the office boy, the clerk, the mill hand, or the advertising manager, the production superintendent, the chief engineer. We are all human; let us not forget it.

Of course, in any organization, requests for salary increase will be made by individuals whose work does not entitle them to it. How are these to be handled?

Some concerns avoid such requests as they would the plague. This is unfortunate. Such requests, while not indicative of increased Capacity, nevertheless indicate live Interest capable of harnessing. Each such request, impossible of fulfilment through the inadequacy of the worker's performance to date, yet offers automatically an opportunity to the Personnel Manager or the department head to explain to the employee *just why* the increase cannot be granted *now*. If the company's technique of wage control is operating properly, there is a good reason for it. Here is management's opportunity to present the facts, to discuss the Occupational Description and the Qualification Card, to explain just why in terms of capacity, interest, and performance the employee is not at the moment entitled to an increase in salary and to point out how in the next succeeding months he can qualify for advancement in pay. This calls for diplomacy, for care, for a study of the individual's temperament, state of mind, and probable reactions. But when well done, this procedure almost inevitably makes for renewed energy on the worker's part and for increased productiveness which, at the right time, can properly be recognized by an increase in salary.

One advantage of the general procedure in wage control outlined in this chapter, is that it avoids the necessity for excessive detail or for complicated procedure, yet makes available to the Personnel Manager and the Salary Committee all the salient facts bearing on the salary rates prevailing through the organization. Simplicity is always desirable, provided it is not achieved at the sacrifice of efficiency. Too often individual concerns will lay so great stress upon one



or the other that either it is handicapped in effective operation through inadequate records and instruments or is enmeshed in the red-tape which results from over-systematization. The technique and procedure set forth here which is utilized, with modifications, by so many companies seems to steer the sensible middle course.

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## XXV

### SUPERVISION

Change in the conception of foremanship. The power of the foreman and the supervisor. What constitutes a capable executive. Decline of the importance of disciplinary power. Value of personnel instruments to the departmental executive.

TEN years ago the executive and foreman enjoyed far more autocratic powers than they do today. Not only was each held responsible for the technical aspects of the work of his department, but he was held responsible for well-nigh everything else that pertained to its operation as well. He hired his own workers, for instance, decided their rates of pay, imposed his own regulations, determined his own standards of conduct and performance, and dismissed them when it was his whim to do so.

Now any departmental executive or foreman who is compelled to assume responsibility for all the technical aspects of his work, for the procurement of raw materials, for routing, planning, and scheduling, is obviously a very busy man, and when he attempts to superimpose upon these responsibilities all those we have just mentioned which pertain to the personnel, it is inevitable that all of them cannot be performed with equal effectiveness. When management requests the foreman to carry a burden of this weight, it imposes upon him a task which the average foreman is not capable of performing. One or another of his duties must suffer, and it is perhaps natural that when the foreman is held responsible both for the technical operation of his department and for the administration of his personnel, the former is never slighted; the latter always is. Retribution for mistakes and errors which pertain to technical production is too immediate and certain. Retribution for errors

and mistakes of departmental administration as it applies to the workers is more apt to be deferred.

#### THE CHANGE IN THE CONCEPTION OF FOREMANSHIP

Before the growth of the present personnel movement in industry, we found that the foreman customarily hired and fired his own men. His idea of his duties as a supervisor of workers was not very different from that of the kings of mediaeval history (before 1918 A. D.) who believed in rule by divine right. Quite naturally this led to a failure on the part of the foreman to think too carefully or too sympathetically of the individual problems of his workers and brought about reliance upon discipline as the instrument to promote production.

Management's failure in those days to give the foreman a truer conception of his responsibilities and the foreman's preoccupation with the technical aspects of his work resulted in the worship of Fear as the driving force in departmental operation. The use of fear to promote production is entirely in keeping with our mediaeval simile. In our admittedly great wisdom of today, we see that supervision and foremanship using fear as its chief weapon produced increased production in leaps and starts, especially when the foreman was personally present, created a great deal of human unhappiness, developed the habit of malingering, promoted labor turnover with its consequent trail of evils, reduced production per man and per group, and depreciated the buying power of the wage dollar. Twenty, forty, sixty years from now—what practices of ours which are now accepted as sound by industry in general will be similarly abandoned?

It is not our intention at this point to trace the development of modern thinking along these lines. This has been done in a general way in Chapter I. Suffice it to say that 10 or 15 years ago, that trend of thought which we call the personnel movement began to make itself felt. The economic and social evils inherent in supervision-by-fear became

more and more apparent until, with a certain burst of enthusiasm, the cry was set up that personnel control should be concentrated. During these earlier years of the personnel movement, consequently, we find many instances in which the personnel department was not a staff department, it was distinctly a line department. In some cases even the function of discipline was removed from the department executive.

This extreme tendency toward centralization brought about difficulties of a different nature—most of them having to do with the matter of departmental control. In more recent years, consequently, the trend has been toward *the decentralization of personnel work with centralized control*. This tendency has resulted from the increasing appreciation of the value of the department head or foreman as the real “personnel executive.”

For the executive or foreman occupies a position of great strategic importance, as we have pointed out. Regardless of what the policies of the management may be, regardless of the company's attitude toward its people, the average employee will think of his employer in terms of his immediate superior. If the department head or foreman is fair, generous in his attitude, helpful and inspiring, the employee's attitude is apt to be that “this is a good company to work for.” If, on the other hand, the executive or foreman is brusque, impatient, petty, jealous, and unfair, the most honorable and sensible intentions on the part of the management toward the worker will not prevent the subordinate from thinking of his company in unfriendly terms.

#### THE POWER OF THE FOREMAN AND SUPERVISOR

As a matter of fact the foreman is a more powerful personage than most persons, his superiors included, usually appreciate. He exerts a tremendous influence upon the effectiveness of the workers subordinate to him. According to the nature of his supervision, he can break a worker who would

otherwise be successful, or develop to unexpected degrees of efficiency a worker who otherwise would prove mediocre at best.

The foreman has it in his power more than any other person to promote or defeat those personnel policies of the management which are planned to develop productiveness on the part of the employees.

The management is concerned not so much with the desirability that the employees be *present* during the hours of work as it is that they shall be highly *productive* during those hours in which they are present. Management wants production primarily; it wants physical presence only as a necessary factor in production. The wage dollar should do more than purchase mere physical presence, it should purchase the utmost in quality and quantity of output that the worker is able to deliver during his physical presence. There arises immediately, consequently, the need for that kind of supervision which will create a positive desire on the part of the worker to produce rather than a negative desire to avoid penalization for malingering. This calls for that kind of supervision on the part of the foreman which lays especial emphasis upon the qualities of leadership.

#### WHAT CONSTITUTES A CAPABLE EXECUTIVE

Industry needs men in supervisory positions who can command loyalty. It needs men who can handle subordinates intelligently, consider the strengths and weaknesses of each, make allowances for them, and bring to bear upon each the kind of personal influence, the kind of stimulus to which he, individually, will respond best. Industry needs men who will be less impressed with their importance than with the importance of their work, men who think of their relations with their subordinates as an opportunity for unlimited constructive endeavor rather than as a source of personal annoyance or as a chance to display petty superiority.

The capable department head, the capable executive, the

capable foreman, each will be successful in winning confidence and respect through his appearance and manner as well as through those more fundamental characteristics of knowledge, skill, fairness, and honesty. He will maintain at all times an open-minded attitude toward his associates and subordinates; he will welcome suggestions; (even if they possess no merit in themselves) and will encourage his subordinates to develop their initiative as far as possible. He will himself possess originality in marked degree and will continually do things in new and better ways and will adapt improved methods to the work of his department.

As implied above, he will be successful in winning the co-operation of his workers, in developing in them a pride of product, of workmanship, and of department. He will delegate authority wisely and will organize the work of his department in the light of the special Capacities and Interests of his workers.

He will cooperate in manner as well as in fact. He will consider the difficulties and problems of others, of those within his own department as well as those elsewhere in the organization, and will do whatever can be done to make his own department a smooth-running part of the organization as a whole.

He will recognize as one of his primary responsibilities that of developing his workers. The success of any executive or foreman over a long period of time must necessarily depend in large part upon the degree with which he develops successful and capable employees. Other things equal, his success will be measured by the degree in which he fulfils this requirement.

And, of course, he will be fully informed as to the technical aspects of his work and will have access to sources of information outside himself which will serve to increase the success with which he fulfils those technical duties.

This is obviously a glowing picture of the executive. Few men will meet all these requirements in maximum degree, yet it is proper that industrial concerns should set for them-

selves some such goal as this in building up their supervisory forces. Certainly in the degree in which they are successful in doing so, they will find success in building up the morale and effectiveness of their organization as a whole.

#### THE DECLINE OF THE IMPORTANCE OF DISCIPLINARY POWER

When we think of executives and foremen in terms such as these, the importance of disciplinary power becomes less and less apparent. Executives and foremen who are capable of developing this kind of leadership and who can develop their subordinates into loyal and effective working units need no special club to hold over the heads of their people. In many concerns, in fact, the power of discharge has been taken away from the foremen, even the power of dismissing from the department the employees who seem to offend. The principle underlying this withdrawal of the power of discharge from the foreman can be summed up briefly in the words of a general manager of a well-known concern in the Middle West. In this particular concern the question arose as to what is the foreman's responsibility. The Rate Department sets his rates, the Planning Department plans his work, the Engineering Department sets his standards, the Employment Department hires and fires his help, and so on, and so on. This has the practical effect that, while the foreman has no "authority" he still has full responsibility for results. The Management's task was to impress upon the foremen that this condition is sound.

The general manager of the company just referred to put it up to his executives thus:

If you want Bill in the toolroom to rush some work to you, you don't threaten to fire Bill, as you have no authority to do so. What do you do? You work for and secure Bill's cooperation and through cooperation you get results. Here you have responsibility without authority. You must have a higher type of ability to get results under such conditions.

The Sales Department has the same problem. They have responsibility for results from prospects. Cooperation and ability

to *command* it, in place of authority and the power to *demand* it, get results.

You, as foreman, are in the same situation with your subordinates. Having lost the old weapon of discharge, you must depend, not on *authority* but on *cooperation* to get results from your men. This is the higher type of foremanship. Responsibility without authority is as sound a principle for foremen as for the Sales Manager.

This is admittedly an unusual demand to make of departmental executives. Industry generally has not gone so far in demanding results without authority. But whether or not the power of dismissal from his department rests with the foreman or with the Personnel Manager, it is obvious that the Personnel Manager's function is to act as a coordinator of the supervisory efforts expended throughout the organization. Not only does he coordinate these efforts, but he cooperates with the executives and foremen and strengthens their arm so far as he can in carrying out these supervisory duties.

#### THE VALUE OF PERSONNEL INSTRUMENTS TO THE DEPARTMENTAL EXECUTIVE

The Qualification Card, for instance, would fall short of its full measure of usefulness if the information it contains were not made available to the department head and to the foremen. In small departments it is, of course, possible for the executive to know his workers far more intimately than in larger organizations. But even in small departments the executive cannot know his people as well without the Qualification Card as he can with the Qualification Card. There are many kinds of information regarding the employee—such information as that having to do with dependency, family obligations, education, physical qualifications and limitations, special interests—which will be denied the executive even in a small department unless he has recourse to the data yielded by the Application Blank and Qualification Card and subsequently through the periodic interviews. In like manner it is difficult for him to form a



fair appraisal of his people or to benefit by the opinions of others unless he utilizes in the daily administration of his department the information which is made available by the Rating Scale. It is difficult for him to know the work in his own department (no matter how well he may think he knows it) unless he has recourse to the information contained in the Occupational Descriptions. Instances are abundant where department heads and foremen, well-informed though they have been, have obtained valued knowledge of the work done by their subordinates through the construction of the Occupational Descriptions.

It is good practice similarly for the Personnel Manager to see to it that the department head and his executive assistants are provided with duplicates of the Qualification Card (or excerpts from them) and with duplicates of the Occupational Descriptions. With these duplicate instruments in his possession, he is in a position (with the counsel and advice of the Personnel Manager) to establish that proper balance of Capacities, Interests, and Opportunities within his own department which the Personnel Manager is attempting to establish throughout the organization as a whole. Of course, these results will not be achieved by merely turning over the copies of the Qualification Card and Occupational Description to the department head or foreman. The Personnel Manager is constantly faced with an educational problem. It is his job to sell the principles of sound personnel work to the department heads and foremen and to train them in the effective use of these instruments.

In the development of the personnel idea on the part of busy executives and foremen, the Personnel Manager is face to face with a very difficult problem. At times there is a certain impatience evidenced by line executives toward staff departments of any kind. This is sometimes directed at the Personnel Department. The harassed executive, hedged in by the details of his own job and lacking the perspective which is essential to good judgment, at times adopts a critical attitude toward the Personnel Department. To this

harassed executive, the problems of the Personnel Department seem simple. As he comes more and more to appreciate the personnel point of view, however, he comes to lose this narrow conception of the Personnel Manager's work. As implied above, however, this is a matter of continuous educational effort. One concern has solved it by detailing its departmental executives to the Personnel Department for periods of several months. Each takes an active part in the work of the Personnel Department, utilizes the records, interviews applicants, steps into the Personnel Manager's shoes, as it were, for the time being. This practice has proved exceedingly helpful. Many of the men who previously regarded the Personnel Department intolerantly came to appreciate its importance, the value of its service and the difficulties involved, and upon returning to their own departments have shown an attitude of greater cooperativeness.

The elements entering into effective supervision would require a volume in themselves for detailed discussion. It is obviously not the function of such a book as this to treat the various aspects of supervision other than in a general way. Yet a book on personnel administration would fail woefully short of its objectives if it failed to make clear, in some such manner as has here been attempted, the vital importance of the executive and foreman in any program designed to cultivate the Capacities and Interests of the employees, balance them properly with the Opportunities offered in the work, obtain true personal effectiveness on the part of each, and develop a wholesome company morale.

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## XXVI

### THE SIGNIFICANCE OF LABOR TURNOVER

Its cost. Why labor turnover is significant. General influence of a community nature. A small whirlpool in a large pond. The influence of the salary scale. Primary and secondary turnover analyses. Some practical results.

THE instability of labor has always been a source of annoyance to commerce and industry. But, strange to say, in earlier days it was not thought of as anything more serious. As a general rule, there seemed to be an adequate supply of labor. Oblivious of such things as special qualifications, it was agreed with Bobby Burns that "a man's a man for a' that!" And if one man quit, the solution was simple: get another. But today industry views labor turnover in a far different light. Utterly aside from the human unhappiness it creates and viewing it solely in its economic aspect, management is now appreciative that excessive labor turnover is a costly luxury in dollars and cents.

Certain kinds of labor turnover are, of course, wholesome. This kind of turnover is the evidence of a living organization. New ability is being drawn into the organization. Men and women are moving forward and upward in terms of ability and capacity, at times leaving the organization to find elsewhere the proper opportunity for their increased powers, at times leaving the organization to assume particular responsibilities of a family or social nature. No intelligent management quarrels with this kind of labor turnover. To do so is to quarrel with fundamental laws of social organization and human nature. Should management oppose this kind of growth, it would incline in the end to the creation of a state of stagnation within the organization which would eventually lead to disaster.

## THE COST OF LABOR TURNOVER

But we can afford to dismiss with a few words this wholesome turnover, as our problem does not lie with it. Unfortunately, for every person who quits his job or leaves his organization for a reason which is socially or economically sound, there are hundreds who leave for reasons which are basically wrong or fanciful or for no reasons at all. Each person who leaves his job unnecessarily in this way creates an economic loss which society as a whole must stand and, were it possible to estimate it, the amount of this loss in the aggregate would be staggering.

There are various factors entering into it which we have already discussed. In the first place management is losing the services of a man whose skill in his work has been developed at considerable expense. This necessitates the breaking-in of a new man and the cost of giving him the necessary training to bring him to the same degree of efficiency as the man he replaces. During this period of training, the loss, scrap and waste, both in material and time, is necessarily far greater than would have been the case had the former incumbent carried on. And with the new and untrained man on the job, production is necessarily lessened, not only in the work itself, but in all other occupations which in a routing sense are dependent upon it. Furthermore departmental production as a whole is lessened as a result of the disorganizing effect of the exchange upon the other persons in the department.

Such factors as these are difficult of measurement. It is hard to set a value upon them. If, through some mathematical wizardry now beyond our powers, we should estimate these factors as we have suggested in Chapter III, and if it were possible to express the cost of labor turnover in a debit entry of this kind on the books of the company, an even more intelligent interest in the problems of labor administration would govern the policies of most of our industrial and commercial organizations.

## WHY LABOR TURNOVER IS SIGNIFICANT

But we are not as concerned with labor turnover in itself as we are with the causes for labor turnover. There are in any organization a number of varying influences, some making for heightened morale, for contentment, for effectiveness, for stability; others making for discontentment, disaffection, lack of interest, inefficiency. Management's natural aim is to strengthen the former and do what it can to defeat the latter.

Now labor turnover may be regarded as an indication of the relative strength of these negative, unfavorable influences as against those which are positive and favorable. The very factors, the very causes, the very influences which tend to create those attitudes of mind which lead employees to quit, inevitably react unfavorably upon the mental attitudes of those who remain, undermining interest and morale, destroying efficiency. It is apparent from this that management is interested in labor turnover not so much from the point of view of the cost of replacing the men who leave, as it is interested in labor turnover from the point of view of the cost of lessened interest and effectiveness throughout the organization.

Any study of the causes of labor turnover, consequently, which leads to constructive action is an attack both upon instability and upon malingering on the part of those who remain.

At the present stage of industrial development, it is quite impossible to look for anything like maximum stability in the average company. By the practice of well-thought-out personnel policies, it is true that certain isolated concerns have been successful in reducing their labor turnover to a remarkable degree. These exceptional cases cannot be considered in determining a normal or an average turnover rate. As a matter of fact what might be a normal rate for one company might be extremely low for another and extremely high for a third. What might seem to be the nor-

mal rate for a given company this year might have been extremely low last year and may in fact be unwarrantably high a year hence. However, taking companies in different industries and in different localities, and considering them in general terms, we may assume that the company which, to maintain a work force of 1,000 persons engages 1,000 new employees in a year's time, is neither above nor below the average.

#### GENERAL INFLUENCES OF A COMMUNITY NATURE

The influences which affect the turnover rate for any company are, as implied above, numerous and varied. There is a direct tie-up, for instance, between labor turnover in the normal plant and the state of the labor supply. An increased demand for labor will almost inevitably result in an increase in the labor turnover rate. It is undoubtedly true that certain types of workers—direct descendants of our nomadic ancestors—constantly feel the urge to move on. Far fields seem greener than those close at hand. Employment in a company in the next street or the next town seems to offer allurements which are apparently absent in their present positions. Workers who have become imbued with this unconscious restlessness will remain at work during the months or years in which they feel jobs are scarce. They are not prepared to abandon their source of livelihood unless the probability of another amounts practically to a certainty. But when jobs are plentiful and labor is scarce, they seize the opportunity to seek elsewhere for their will-o'-the-wisp.

Again the stability of labor reacts to the nature of the locality. It is probable that concerns located in small towns, free from local competition, enjoy a higher rate of stability than those located in the larger cities. This is especially true of the great industrial centers like Pittsburgh, Cleveland, and Detroit which, by the very number of their indus-

tries, attract from all over the floaters and drifters looking for easy jobs and lots of pay.

#### TURNOVER IS A SMALL WHIRLPOOL IN A LARGE POND

As a matter of fact, even in the case of those concerns whose labor turnover is high, it is true that the majority of employees are stable. In practically all plants there is a certain nucleus of employees who could not be separated from the payroll with TNT. Around these are others perhaps less rigidly affixed to the payroll, but nevertheless inclined to stay put. These relatively stable employees comprise, in most instances, by far the greater part of the total number employed. The others, the unstable ones, however, stay normally such a short period of time in their positions that each is responsible for as many as three or four separations a year. From this it is apparent that, while in the average company the great majority of the employees may be permanently settled in their work, the labor turnover for the company as a whole may exceed 100%.

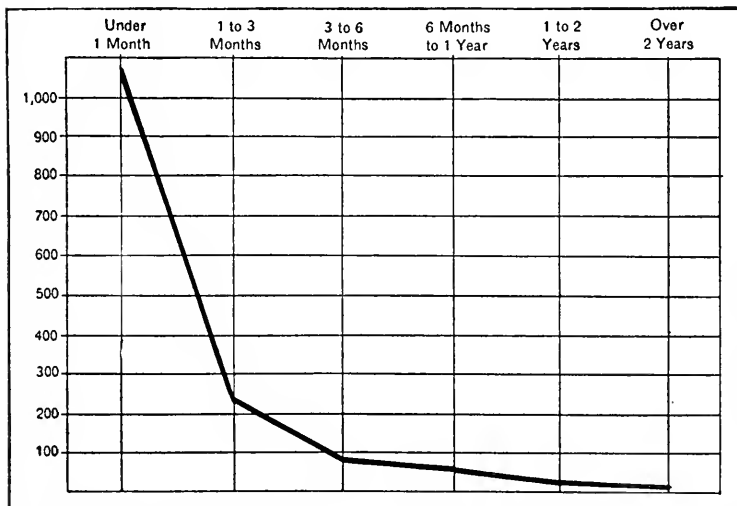


Figure 69: Graph showing trend in labor turnover in one company

This general trend is shown in the chart on page 451 made up from the turnover figures for one company in the East. Here it is apparent that the labor turnover for those persons under one month of service was 1,026%. This percentage declined swiftly as the length of service progressed until, for those employees having been with the company over two years, we find the labor turnover is only 11%.

Detailed data on this tendency of the labor turnover in any concern to appear in acute form among the newly hired employees will be discussed later.

#### THE INFLUENCE OF THE SALARY SCALE

Naturally another basic characteristic of labor turnover is that it bears an inverse relation to the salary scale. Other things being equal, the labor turnover percentage will be smaller for those concerns which pay their employees well. This is clearly demonstrated in the case of the Ford factory at Detroit which is referred to in S. H. Slichter's book, *The Turnover of Factory Labor*:

TABLE 15  
EFFECT OF INCREASE OF WAGES AND REDUCTION OF HOURS FROM  
9 TO 8 PER DAY WHICH TOOK EFFECT JANUARY 1, 1914

Year	Average Force Employed	Total Leaving	Turnover	Resignations	Lay-offs	Discharges
1913	13,623	50,448	370%	39,575	2,383	8,490
1914	12,115	6,508	54%	5,199	385	924
1915	18,028	2,921	16%	2,871	23	27

Any consideration of the causes of labor turnover which considers only these general basic conditions, however, must necessarily fall far short of its proper objective, for in studying labor turnover we do not seek to reinforce our knowledge of the obvious factors but to secure information about those factors and influences which are hidden and obscure. A moment's consideration will bring one to an appreciation of the fact that just as an ocean swell consists



of myriad waves and ripples, so does the turnover in a company consist of smaller turnovers in various groups of the employees caused by various sets of reasons. It is the first purpose of labor turnover analysis to identify these groups of employees and the causes for the instability within each group and, in consequence, to indicate the proper course of action for management to pursue in correcting them.

#### THE PRIMARY TURNOVER ANALYSIS

Various different formulae have been advocated for estimating labor turnover. A number of these are discussed in the Appendix to this book. These are based variously upon terminations of employment, upon replacements and upon both. We are not so much concerned, however, with the exact formula of estimating turnover as we are with the turnover itself. Any good formula indicating the ratio of separations or replacements to the average payroll will serve the purpose of an industrial or commercial institution provided it adheres to the same formula in all its reckonings and admits comparisons only of percentages so derived.

In like manner various labor turnover formulae have been developed for the purpose of determining turnover tendencies by departments and by reasons for leaving, but analyses which strike farther at the underlying facts in each instance have seldom been attempted. While the value of such data is very great, yet pressure of work under which most personnel departments operate has seemed to prevent them from attempting to analyze and discover these more obscure, yet highly important, causes.

The customary analyses, admirable though they are in most instances, fail to go to the heart of many personnel problems because they stop with merely a statement of reasons for leaving in relation to departments. Such analyses ordinarily set forth for the period under consideration:

1. The reasons for leaving
2. Length of service of those leaving
3. Exits by departments
4. Exits by occupations

Undoubtedly the most significant facts brought out by these primary analyses are with reference to the exits by occupations. To carry turnover analyses, however, to the point where underlying conditions and obscure causes are brought to light, it is necessary to make an entirely different sort of approach.

#### THE SECONDARY ANALYSIS

An instrument used by a number of companies for discovering these hidden facts in their labor turnover is the Labor Turnover Daybook. This bears much the same relation to the personnel in any company as the cash register does to the cash box. Each disbursement is identified and described. In the Labor Turnover Daybook, the name of every employee terminating his employment for whatever cause is entered in the proper column, see Figure 70. Opposite his name, by entry and by check are entered from his Qualification Card data regarding his age, nationality, sex, and race, dependents, education, marital status, housing status, the channel through which he was secured, his trade test rating, and his mental alertness score. Further data are also entered opposite his name with reference to his length of service, the reasons for the separation, the department and occupation from which he was released, the shift to which he was assigned, and so forth, and so forth.

The code employed by one company in connection with the Labor Turnover Daybook is shown on pages 456 to 460 (here). The figures shown in the reproduction of the page from the Labor Turnover Daybook in columns: Nationality, Secured Through, Reasons for Leaving are taken from this code. *Under Sex and Race*, the initials

## WEEK ENDING 19-

**FIRM**

**CITY**

NAME	AGE	BIRTH DATE	SEX	RACE	MIL STATUS	RECEIVED FOR	MIL SERVICE	RECEIVED FOR LEAVING	RECEIVED FROM	REMARKS
Henry Anderson	33	2	M	W	CS	10	11	232	M 102	
Sara Anderson	25	4	F	W	CS	3	30	817	0 19	

**Figure 70: Specimen sheet from typical Labor Turnover Daybook**

obviously stand for White, Colored, Male, Female; *under Education*, for Common School, High School, and College; *under Marital Status*, for Single and Married, and *under*

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NATIONALITY	
ENGLISH	Code
American .....	1
English .....	2
Irish .....	3
Welsh .....	4
Scotch .....	4a
GERMANIC	
German .....	5
Dutch .....	6
SCANDINAVIAN	
Swedish .....	7
Norwegian .....	8
Danish .....	9
LATIN AND GREEK	
Italian .....	10
French .....	11
Spanish .....	12
Portuguese .....	13
Greek .....	14
SLAVIC AND LETTIC	
Polish .....	15
Bohemian .....	16
Slovak .....	17
Russian .....	18
Slovenian .....	19
Servo-Croatian .....	20
Other Slavs .....	21
Lithuanians and Lettish .....	22
MISCELLANEOUS	
Yiddish and Hebrew .....	23
Magyar .....	24
Finnish .....	25
Others .....	26

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## REASONS FOR LEAVING

## A. RESIGNATIONS

## I—CAUSES PERTAINING TO JOB

a. WAGES	Code
1. Rate . . . . .	1
2. Earnings . . . . .	2
3. Uncertainty of amount . . . . .	3
4. Method of computing pay . . . . .	4
5. Method of pay . . . . .	5
b. NATURE OF JOB	
1. Work too hard . . . . .	6
2. Work too heavy . . . . .	7
3. Work too monotonous . . . . .	8
4. Work too dirty . . . . .	9
5. Work too dusty . . . . .	10
6. Work too wet . . . . .	11
7. Work too smoky . . . . .	12
8. Work too cold . . . . .	13
9. Work too hot . . . . .	14
10. Work too dangerous . . . . .	15
11. Work too noisy . . . . .	15a
12. Work too oily . . . . .	15b
13. Unpleasant smells . . . . .	16
14. Poor lighting . . . . .	17
15. Work causes too much eye strain . . .	17a
16. Work unhealthful . . . . .	18
17. Work involves too much nerve strain .	18a
18. Standards of quality	
(a) Too high . . . . .	19
(b) Too low . . . . .	20
19. Unsatisfactory toilet facilities . . . .	21
20. Unsanitary conditions . . . . .	22
c. HOURS OF WORK	
1. Hours too long . . . . .	23
2. Hours unhandy . . . . .	24
d. TIME OR CONTINUITY OF WORK	
1. Night work . . . . .	25
2. Sunday work . . . . .	26
3. Seven days' work . . . . .	27

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	Code
4. Lost time .....	28
5. Overtime .....	29
e. NO CHANCE TO ADVANCE.....	30
f. FACTORY TOO FAR FROM HOME.....	31
 II—CAUSES PERTAINING TO HANDLING MEN	
a. Dislike of foreman .....	32
b. Dislike of management .....	33
c. Unadjusted grievance .....	34
d. Request for transfer refused .....	34a
e. Labor trouble	
1. Labor trouble threatened .....	35
2. Strike .....	36
 III—CAUSES PERTAINING TO FELLOW-WORKMEN	
a. Unsatisfactory relations with fellow- workmen .....	37
b. To accompany a friend leaving.....	38
 IV—CAUSES PERTAINING TO THE WORKER	
a. Wanderlust .....	39
b. Desire for vacation or change of work..	40
c. To go to school .....	41
d. To join army or navy .....	41a
e. Ill health	
1. Caused by factory work .....	42
2. Caused by exterior factors .....	43
f. Injury	
1. From work .....	44
2. From outside causes .....	45
 V—THE COMMUNITY	
a. Lack of diversion .....	46
b. Housing conditions .....	47
c. Narrow acquaintance .....	48
d. Does not like climate .....	49
e. Does not like city .....	50
 VI—THE FAMILY OF THE WORKER	
a. Sickness in the family .....	51
b. Poor schools .....	52

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	Code
c. Family moving .....	53
d. Needed at home .....	54
e. Family does not like city .....	55
VII—MORE ATTRACTIVE OPPORTUNITIES	
a. To take job with better pay.....	56
b. To take job with better hours .....	57
c. To take job with better future .....	58
d. To go into business for self .....	58a
e. To retire .....	58b
f. To take former job .....	59
g. To work at trade .....	60
VIII—REASON UNKNOWN	
a. No reason given .....	60a
b. Left without final interview .....	60b
c. Leaving city .....	60c
B. DISCHARGES	
I—INADAPTABILITY	
a. Incompetent .....	61
b. Slow .....	62
c. Physically unadapted .....	63
d. Spoiling work .....	64
II—INEFFICIENCY	
a. Careless .....	65
b. Lazy .....	66
c. Caught loafing or sleeping .....	67
d. Absenteeism .....	68
e. Tardiness .....	69
f. Unreliability .....	70
III—UNDESIRABLE	
a. Disagreeable .....	71
b. Dissatisfied .....	72
c. Chronic kicker .....	73
d. Disturber or troublemaker.....	74
e. Source of contagion .....	74a
f. Refused transfer .....	75
IV—POSITIVE MISCONDUCT	
a. Violation of rules .....	76

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	Code
b. Insubordination .....	77
c. Dishonesty .....	78
d. Intoxication .....	79
e. Fighting .....	80
f. Immorality .....	81
 C. LAY-OFFS	
I—Industrial depression .....	82
II—Seasonable fluctuation .....	83
III—Completion of temporary job .....	84
IV—Change in industrial processes .....	85
V—Discontinuance of department .....	86
VI—Sickness and accident .....	87
VII—Shortage of materials .....	88
VIII—Breakdown .....	89
IX—Strike or lockout .....	90
X—Cancellation of orders.....	91
 D. TRANSFERS	
I—Physical reasons .....	92
II—Failed, given second chance .....	93
III—Better fitted for new job .....	94
IV—Departmental fluctuations .....	95
V—Promotion .....	96
VI—Employee's desire .....	97
VII—Training .....	98
VIII—Seasonable fluctuation .....	99
IX—Completion of temporary job .....	100
 E. MISCELLANEOUS	
I—Superannuated or pensioned .....	101
II—Death	
a. Occupational causes .....	102
b. Exterior causes .....	103
III—Marriage .....	104
IV—Pregnancy .....	105
V—Failed to report .....	106

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Figure 71: Labor Turnover Daybook Code

*Housing*, for Owns Home, Boards, Rents, and Living at Paternal Home. *Under Trade Test Ratings*, is entered in



each instance the proper initial to indicate Expert, Journeyman, Apprentice, or Novice. The actual Mental Alertness Test score is entered *under Mental Alertness*. The symbols entered *under Released From* are, of course, taken from the Departmental and Occupational Codes.

Thus, with negligible clerical effort, detailed information is kept of each separation. We know, for instance, that Henry Anderson, a blacksmith, left from the foundry during a certain week after having been employed a year and 33 days, because of dissatisfaction with earnings and also because of poor supervision. He had been originally secured through friends already employed. He was English, 33 years of age, married and with two dependents. A common school graduate. Owned his own home. Had journeyman skill. Apparently too good a man to lose—especially for such a reason.

This information by itself is significant. When taken in consideration with similar information regarding a score or a hundred or a thousand other ex-employees, it becomes rich with meaning when subjected to the proper statistical analysis.

Subsequently, tabulating-machine cards are punched for each employee and these cards are so grouped and classified through the use of the tabulating machine that the obscure facts to which we have referred can be brought to light with a minimum expenditure of time and effort. It is through such technique as this that industrial concerns are able to make these secondary analyses which show the interrelations of important factors.

To illustrate, if the number of employees leaving because of inefficiency is unusually high, the primary analyses will show in which occupations and in which departments these employees have been working, but a secondary analysis thus made, possibly will show the relative proportion of the sexes in these groups or show the significance of length of service, the significance of education, the significance of trade-skill, the significance of the supervision in this department as

against the supervision in that, the significance of certain rates of pay.

For instance, in one plant it was found that 28, or 9.4%, of 298 employees leaving during October left because of night-work. The average length of service of those leaving because of night-work was found to be only  $1\frac{1}{2}$  weeks as compared with an average length of service of  $8\frac{1}{2}$  weeks for the 298 employees who left during October. Eleven of the 28 resignations because of night-work left within a week. Twenty-three of the 28 left within the first month. It is clear that these employees did not stay on night-work long enough to become adjusted to it. In view of the extremely short length of service of this group of employees, it seemed desirable for the employment department to take steps to determine as far as possible in each case whether an applicant for the night force really wanted to work on night-work. Reports from this Employment Department show a reduction from 28 exits because of night-work in October to 7 in November.

In another plant analysis of the length of service of those leaving to take a job with better pay elsewhere and those being discharged was made. This analysis showed that those leaving for better pay elsewhere had a much longer length of service than did those who were discharged. The average length of service of the former group was six months, of the latter only two months. The analysis indicated that it would be in order to give greater care to the question of wage adjustments in the case of employees resigning to take a job with better pay elsewhere, if their length of service and general personal record indicated that they should be retained in the organization. This analysis indicated either that improvement is needed in introductory training of new employees, or that the foremen needed to exercise a more effective leadership in handling men.

In another plant an analysis of the number of exits by occupation showed that an unusual number of stenographers were leaving. These stenographers were scattered through a

number of departments in the office and factory and the usual turnover analysis by departments had failed to indicate this unusual situation with reference to stenographers. Further analysis of this group of stenographers showed that 83% had left because of dissatisfaction with earnings or to take a job with better pay elsewhere! Study of the length of service of these stenographers showed an average length of service of 19 weeks as contrasted with an average length of service of 8 weeks for all the employees who left during the same period. These secondary analyses laid bare this otherwise obscure situation and pointed quite clearly to the urgent need of readjustments in wage rates for stenographers.

These incidents show the kind of knowledge which basic turnover study of this kind may be expected to make available. It is in the degree in which facts of this kind can be brought to light that the personnel policies in any company can be determined wisely.

#### MENTAL ALERTNESS IN RELATION TO TURNOVER

This kind of analysis has led to a number of rather unexpected results. The average manager, for instance, would hesitate to admit the probability of relationship between mental alertness and labor turnover, yet a study has shown that labor turnover under certain circumstances depends in a very direct way upon mental alertness. In two different companies, for instance, experiments were made to trace this relationship. In both companies the mental alertness of the employees was determined by test and was found to have a very direct relation to stability. In these two companies, however, the relation was quite different. Figure 72 illustrates the way mental alertness was found to affect the stability of women clerks in Company A and the stability of men clerks in Company D. The mental alertness scores are represented on the base line and the percentage of employees leaving is shown on the vertical line. The curve for Com-

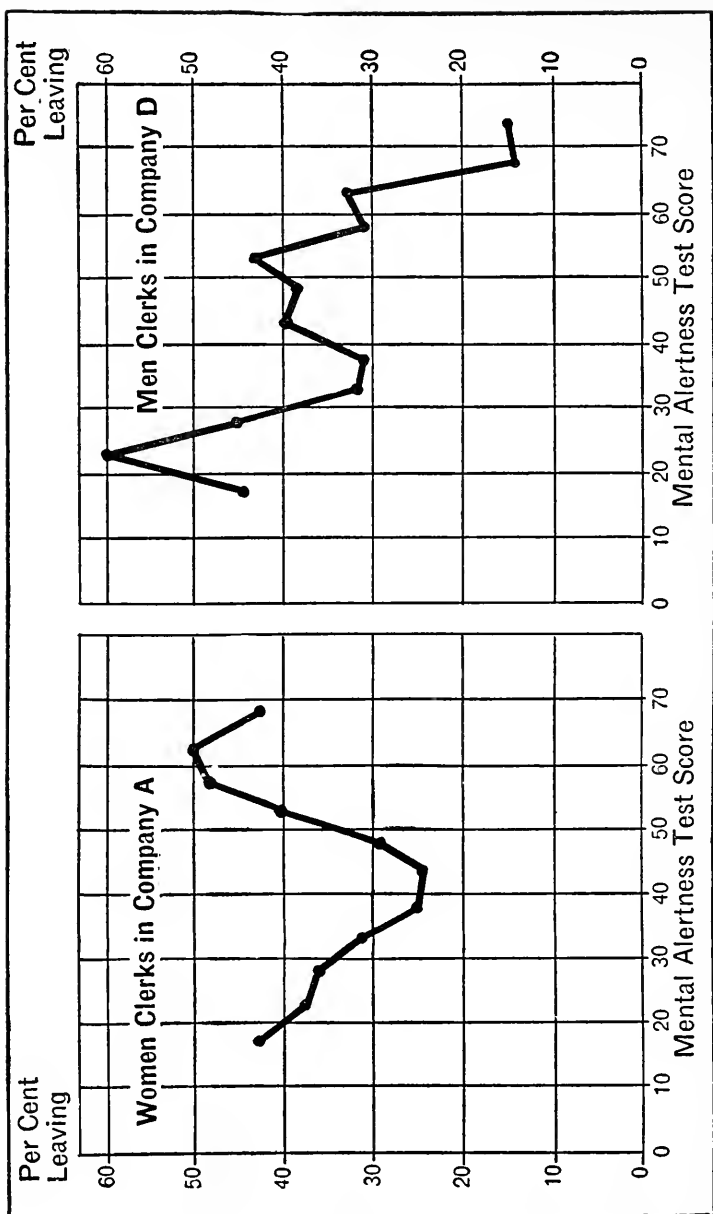


Figure 72: Graphs showing comparison in two companies of Stability in relation to Mental Alertness Test Score

pany A shows that about 40% of the clerks hired who have a Mental Alertness Test score between 15 and 30 leave within six months. This percentage decreases rapidly with the higher test scores until the greatest stability is found among clerks scoring between 35 and 50. For clerks scoring more than 50 the percentage of persons leaving rises again rapidly until, for those making the highest scores, the instability is even greater than for those making the lower scores. This was a serious matter for Company A, since it had already been demonstrated in this company that high score employees are of the greatest value as workers.

The attention of the management in this instance was at once directed to the necessity for developing a promotional policy for the company which would so serve to take care of the employees of superior mental alertness that they would continue to serve the company on a more permanent basis in work of greater and greater importance.

The curve for Company D shows a very different situation. As in Company A the turnover rate among the employees making low mental alertness scores was high. The percentage, however, dropped sharply as far as the score of 30 when there was an obvious rise in labor turnover which was maintained over 15 points of the mental alertness scale. Then as the highest scores were reached, those exceeding 50, there was a pronounced increase in stability, a condition quite contrary to that of Company A. This curve of the labor turnover in Company D in relation to mental alertness revealed a peculiar wage situation which was causing instability among the middle high employees. This influence has now been corrected.

These curves show that it is not simply the average or general run of employees who leave. They show that mental alertness plays a real part in labor turnover—a part which is naturally undetected in any ordinary analysis of employees' reasons for leaving. Curves of this kind give information that can be used in specifying mental alertness requirements for various occupations. They also point out

conditions of employment which exercise a negative influence in the matter of holding desirable employees.

It became evident in this study that mental alertness is a factor in labor turnover for two reasons. In the first place, men are assigned to jobs they are mentally incapable of doing. In the second place, instability, dissatisfaction, and desire for change of work are aroused, because the difficulty and responsibility of the work does not provide an outlet for the intelligence of the worker.

In another company a similar investigation was made. Four hundred seventy employees were considered and those satisfied with their work were listed separately from those who desired work of a different nature. This information was then brought into relation with the number of years each man was retarded at the time he left public school, this being the only available indication of mental alertness in this company.

The proportion of workers of each degree of retardation desiring change of work is shown for five departments in the chart in Figure 73. In the Tool Department, for instance, 83% of the men who were retarded five years in school progress desired change of work.

The differences from one department to another are striking. In the Tool Department, the work is high-grade and varied. A worker to be successful must make many independent decisions in doing his work. Here the greatest proportion of dissatisfaction occurs among the workers who were most retarded in school. The stability increases as the amount of retardation lessens, and then decreases slightly among those who made normal or better than normal progress in school. Clearly those more-than-four-years-retarded are more likely than the group less-than-two-years-retarded to be dissatisfied with Tool Department work.

By contrast with the work of the Tool Department, the work of the Inspection Department is largely "fool-proof," repetitive, and monotonous. Here the amount of dissatisfaction is very low for those men who were very retarded

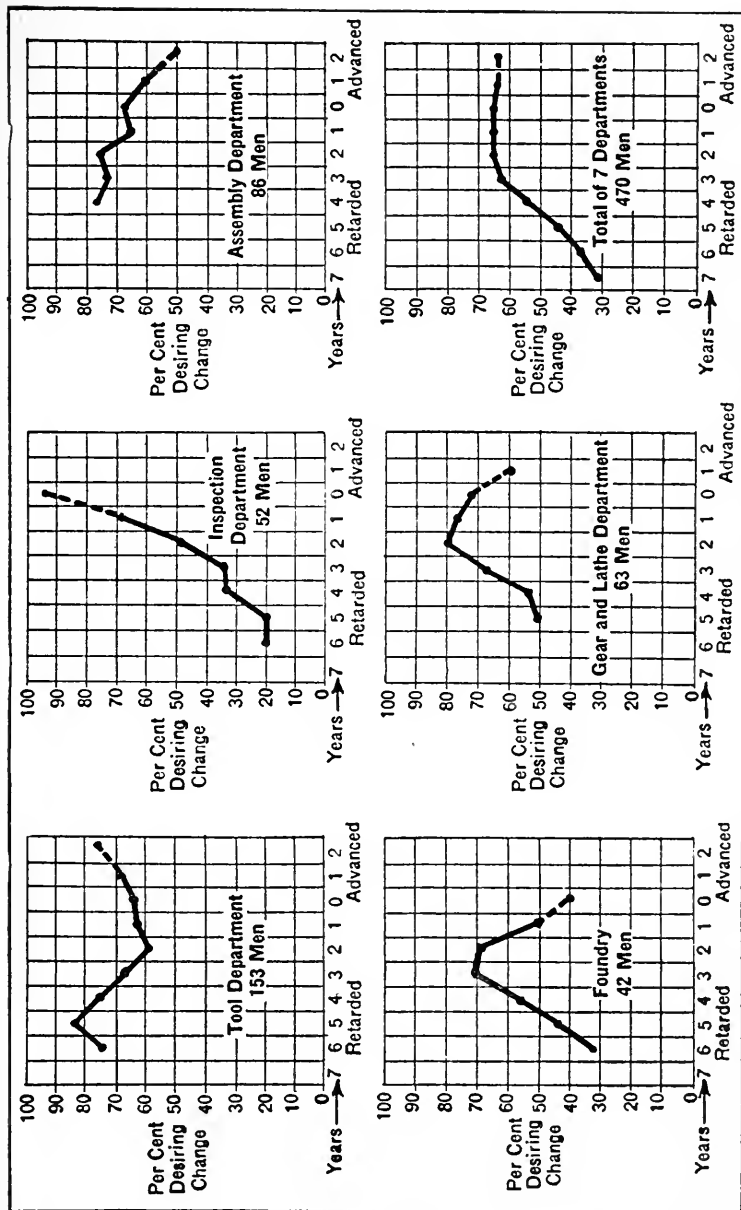


Figure 73: Graph showing relation of desire for change of job and status at leaving public school of the workers within the several departments of one company.

in school. The percentage of dissatisfaction increases markedly, until for these men whose progress in school was normal, 90% expressed a wish for some other kind of work. It is a significant fact that in this department are found both the highest percentage of satisfaction and the highest percentage of dissatisfaction in any of the five departments. This means that in this department there is opportunity, through attaining the right adjustment of mental ability to job, to secure the highest stability; there is also danger, through maladjustment, to produce the greatest instability. From the point of view of job-satisfaction, this single occupation is both the best and worst in the plant—depending on the extent to which selection and assignment of workers is based on a consideration of the mental alertness of the applicant.

In both the Foundry and in the Gear and Lathe Departments, the men who are most retarded are the most satisfied with their work; the men who are least retarded are almost equally content. The greatest instability is found among those who occupy the middle ground in the matter of retardation. This curious fact may be understood when it is realized that in these two departments, there are both very low grade and very high grade jobs. Low-grade workers on low-grade jobs, e. g., chipping and cleaning, are satisfied—and they are incapable of the high-grade work. High-grade workers on high-grade jobs, e. g., molding and gear cutting, are satisfied—and they refuse the low-grade work. The result is that in these departments, the low-grade and high-grade men gradually gravitate to the type of work for which they are fitted. Men of middle grade, however, find the low-grade work dull and uninteresting; the high-grade work is beyond their capacity. Consequently, it is in this group that desire for change of work is most pronounced.

The curve based on the combined figures of seven departments (the five shown and two smaller ones) is unlike that of any one department, illustrating the danger of interpreting mass data without analysis. From the total



curve alone, it appears that the more retarded a man was in school, the less likely he is to desire change of work. This generalization is quite at variance with both the Tool Department and the Assembly Department. The total curve also seems to show that there is little difference in job-dissatisfaction among those ranging from three-years-retarded to two-years-advanced. This generalization is contradicted by the facts in the Inspection Department and in the Foundry.

The results presented in this analysis show clearly that a man's intelligence must be considered in selection and placement, not only because it may determine his ability to do the work assigned, but because in addition it is a determining factor in whether or not he will like his work.

In this connection the Personnel Manager needs two sets of facts in using mental alertness as an aid in assignment. For each occupation he must know what grades of mental alertness are best able to perform the work. He must also know what grades of mental alertness are most satisfied in that kind of work. In cases of unrest and instability in particular departments, the Personnel Manager will be on the lookout for an unsatisfactory adjustment of job-responsibility and mental alertness, as one of the determining factors in the situation.

#### LENGTH OF SERVICE IN RELATION TO TURNOVER

Reference has been made above to the relation which this technique has established as existing between labor turnover and length of service. In one public service corporation of major importance, the labor turnover in the six principal departments was considered from this angle. These departments employed 1,405 people on the average. There were 658 exits from these departments during a given three months' period. If this same exit rate were to continue for a year there would be 2,632 exits. In other words, it would be necessary to hire almost two men for every job

during the year. This labor instability is equivalent to an annual turnover rate of 187%.

TABLE 16  
LABOR TURNOVER

Departments	Average Number of Employees	Number of Exits in Three Months	Annual Turnover Percentage
Number 1	302	50	66%
Number 2	242	60	99
Number 3	110	29	105
Number 4	73	22	120
Number 5	200	91	182
Number 6	478	406	338
Total All Six Depts.	1,405	658	187%

A study of the facts revealed by the secondary analysis showed in the first place that the number of employees on the payroll was fairly constant. It was evident, consequently, that the heavy turnover was not due to lay-offs. In the second place, it was shown that this high labor turnover was not concentrated in one or two of these departments, but that while it was excessive in Department 6, four of the six departments showed a labor turnover exceeding 100%. There was ample evidence, consequently, that the instability was well distributed. In the third place, there was no evidence that this heavy labor turnover was confined to only a few occupational groups. In fact, the evidence showed that these departments were suffering a heavy turnover among all the various groups of employees.

Further analysis revealed that the majority of the workers in these departments were remaining on their jobs with little instability. For instance, the turnover rate among employees who had served a year or more was only 14%. On the other hand, the analysis of turnover by length of service showed, beyond question, that the heavy turnover rate was due almost entirely to a relatively small number of new employees. *The turnover among employees serving less than one month was at the rate of 1,062%.*

This condition to which we have referred in a general way above is demonstrated in the following table which traces the turnover percentage for the employees leaving according to their length of service:

TABLE 17  
TURNOVER OF EMPLOYEES ACCORDING TO THEIR LENGTH  
OF SERVICE

Total for Six Departments	Length of Service of					
	Under 1 Mo.	1 Mo. to 3 Months	3 Months to 6 Mos.	6 Months to 1 Year	1 Year to 2 Yrs.	Over 2 Yrs.
Employees on the Job	171	203	155	148	208	520
Number of Exits	454	115	36	28	11	14
Annual Turnover	1,026%	226%	93%	76%	21%	11%

These figures are shown in graphic form on page 451.

From Table 17, it is apparent that turnover becomes less and less of a problem as employees are considered who have been with the company through longer and longer periods. For instance, the turnover for those who have been with the company over two years is practically negligible. The turnover is somewhat larger for those who have been with the company from one to two years and larger still for those who have been with the company from six months to one year. A still further increase is apparent with those who have been with the company from three to six months.

When we consider those who have been with the company over one month and less than three months, however, we are aware of a very great increase in the percentage rate. In considering these employees alone, we find that it is necessary to hire more than two persons each year for each position, and when we think of those who have been with the company less than one month we find that the number who leave during the year is ten times the number of employees on the payroll.

Another way of expressing this general tendency is to say that three-fourths of the employees on the job have served more than three months. Another way to say it is that over four-fifths of the persons who leave have served less

than three months. Yet another way of expressing it is to say that one-half of the employees on the job have served more than one year and that over one-half of those who leave have served less than one month.

This excessive turnover among the newly employed was shown for each of these six departments as follows:

TABLE 18  
PERCENTAGE OF ANNUAL LABOR TURNOVER, ACCORDING TO  
LENGTH OF SERVICE

Departments	Length of Service of					
	Under 1 Mo.	1 Month to 3 Mos.	3 Mos. to 6 Mos.	6 Mos. to 1 Yr.	1 Yr. to 2 Yrs.	Over 2 Yrs.
No. 1, Annual Turnover	228%	118%	100%	0%	17%	9%
No. 2, Annual Turnover	940	190	22	55	25	7
No. 3, Annual Turnover	450	182	1,000	67	21	0
No. 4, Annual Turnover	700	200	0	0	36	0
No. 5, Annual Turnover	1,230	369	164	130	14	22
No. 6, Annual Turnover	1,850	232	60	150	23	14

#### THE HIDDEN REASONS

Several facts were brought out in this secondary analysis. In Department Number 5, Merchandizing, for instance, it was significant that the annual turnover exceeded 180%, but it was far more significant that the turnover for the employees of less than one month of service was 1,230% as against only 14% for those who have been with the company from one to two years. Further investigation showed that while most of the employees in this department were stable and apparently happy in their work, a virtual whirlpool existed within a relatively small group of special salesmen. Analysis showed that these men were paid straight commission with no basic salary and it immediately became evident that the source of danger in this department lay in the method of paying these men.

Similarly in Department Number 2, Steam Stations, it was found that while the turnover for those employees of over two years' service was only 7%, the turnover was over

900% for those who had been with the department less than one month. Immediately, consequently, the problem resolved itself into the finding of proper answers for two questions:

1. Why, out of the 40 persons who left during the three-month period under consideration, did 12 leave for better positions elsewhere?

2. Why, out of these 40 were 14 discharged for insubordination, indifference, and so forth? Did the employment department really provide men so far below par? If so, why were they accepted? Could this situation be an evidence of poor leadership on the part of the foremen at the Steam Stations?

The significant fact with reference to Department Number 3, Consumers' Accounts, was found in the fact, contrary to expectation, that turnover percentage for those employees who had been with the department from three to six months showed a marked increase over the turnover percentage for those who had been with the department a shorter period of time.

It was found that in this department there was an atmosphere of high nervous tension resulting directly from faulty supervision by the department head and his chief assistant. Investigation showed the probability that this kind of supervision had a cumulative effect and that while the employees of more sensitive temperament could put up with this kind of supervision over a short period of time, they had progressed after several months to that state of mind where they either quit or broke down. The course of action for the management to pursue in this case obviously had to do with developing a different kind of supervision in this department.

Regardless of these special departmental conditions, however, it is apparent from studies of this kind that certain general causes are at the root of the high labor turnover

among newly employed persons. Owing to labor shortage, at times many misfits are hired and assigned to the departments only to be discharged for inefficiency or to be dropped because of absenteeism. Again applicants are not always "sold" on the jobs for which they are hired, with the result that many soon become dissatisfied with the pay and conditions of work and seek better positions elsewhere. Again, it is frequently found that the supervision of new employees fails to take into consideration the uneasiness and disquietude which ordinarily handicap a person in a new environment. Too frequently department heads and their executive assistants fail to assist the new worker in becoming properly adjusted to his work.

#### TURNOVER AMONG COMMON LABORERS

Common laborers are not ordinarily thought of as lending themselves readily to scientific research. The tendency is frequently noticeable on the part of management, even at times on the part of the Personnel Manager, to exempt the common laborers from policies and decisions which have to do with the personnel procedure of their companies. Because he is unskilled and untrained, there is a tendency to think of the common laborer as standardized, as identical in powers with his co-laborer. The educational factor is absent, the special training factor is absent, factors of personality are largely absent; it seems at first glance that physical capacities are all that must be considered. This point of view, if indulged in, is apt to lead astray. The common laborer is just as human as his trained brother in the shops and his educated brother in the office. He is not perhaps susceptible to such fine adjustments as these more fortunate brethren, but the basic principles of personnel administration are applicable to him as well. As an example of the possibilities of estimating labor turnover for workers of this classification, it is interesting to refer to the experience of two metal-parts manufacturing companies in the Middle

West who joined in the study of the importance of age in its influence on the length of service of common labor.

The results from these two companies in this study agree closely in showing a very definite dependence of length of service on age among this class of employees. The average length of service, for instance, of young laborers was shown to be relatively short. For those under 20 years of age, it approximated 5 weeks only. The length of service, however, for the men from 31 to 35 years of age was shown to be four to five times as long, averaging 23 weeks. For the employees still older but less than 45 years of age, a diminution of the length of service and corresponding increase in labor turnover was apparent; for those from 41 to 45 years of age the average was only 9 weeks. For men older than 45 years of age, however, the length of service was shown to increase rapidly until in the group of workers over 51 years of age, an average of 30 weeks was found to be characteristic. These figures refer only to men who had completed their term of employment. In all, 591 cases were available for study. These were distributed about equally between the two companies.

From the data made available by the Labor Turnover Daybook, the chart reproduced in Figure 74 was prepared.

This chart shows at a glance the close similarity between the curves for the two companies. The vertical lines at the left show the effect of marriage upon duration of employment. It is important to note that age seems to play a more important part in affecting length of service among common laborers than does marital status.

It will be apparent to the student who has considered the personnel procedure outlined in this book that the significance of these factors from the point of view of employment practice seems to be in the first place that the short length of service characteristic of common laborers under 25 years of age suggests the need for unusually careful selection and follow-up for men of this group. It demonstrates the possibility that men of these ages are probably assigned

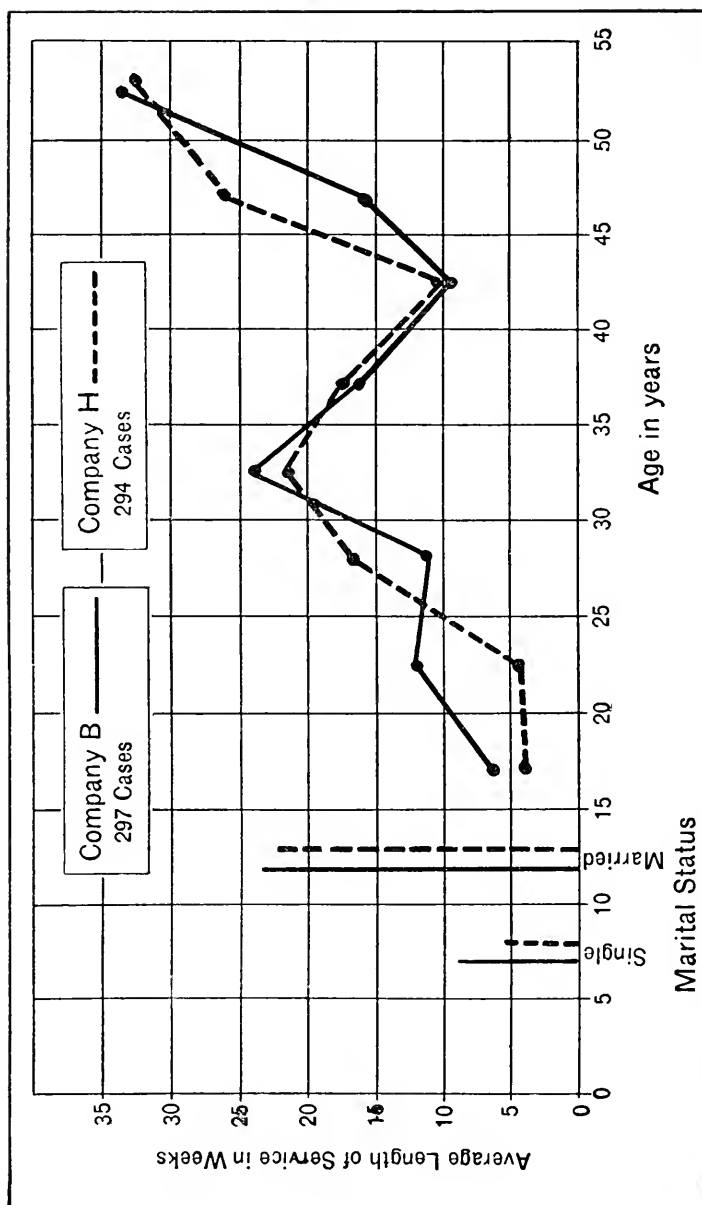


Figure 74: Graph showing average length of service of common laborers according to marital status and age



frequently to work for which they are not physically competent. It suggests that supervision must be of a character suited to young men of this age. The members of the supervisory force should be made aware of the evident constitutional differences between men under 25 and between men from 25 to 40 years of age.

In the second place, it is desirable in choosing common labor to give preference, if possible, to men whose ages are between 31 and 40. The greater length of service for men of this age indicates that greater stability is to be expected.

In the third place, the sharp drop in the length-of-service curve for the men from 41 to 45 calls for exacting study. No obvious reason exists for this phenomenon. It is possible that men of this age have reached the point where they feel the need for establishing their permanent working connection. There may be an inclination to feel that if they are ever going to make a change, this is the time to do it before they get too far along; again it may be true that men in this age-group who have not so far secured permanent employment may have a natural tendency toward instability. Yet again it may be that although these men appear to be as vigorous as men 10 years younger, they have actually passed the prime of life and are not as capable as they were when younger for handling heavy and strenuous work.

In the fourth place, the greater length of service of men over 51 suggests the desirability of capitalizing their stability by setting aside certain light work as "old men's work" and taking care that the assignments are made accordingly. If there is work in the plant that old men can do effectively, it might be advantageous to assign it to men of advanced years.

These observations are put forward, not as an evidence that established standards have been determined for the use of all companies concerned with personnel problems, but to demonstrate the value of labor turnover studies of this

kind in respect to the individual institution. It is apparent from these studies that there is a vast field for worth-while investigational work stretching ahead before the Personnel Manager. Confronted by the many duties of day-to-day operation, this executive is naturally not in a position to carry on this investigational work personally, but where the facilities are favorable, there is no doubt whatever that he should ally with himself a person or persons qualified and fitted to do this kind of work under his direction. It is in the development of this idea that we propose in our next chapter to discuss the value and significance of research in personnel administration.

The average manager is naturally interested in "the reduction of labor turnover" and usually pricks up his ears at the mention of "methods" of doing so. The implication is that labor turnover is a specific disease and calls for a specific remedy. The error in this conception of labor turnover is obvious. Our entire discussion of the problems of personnel is quite clear in this respect.

Labor turnover is the expression of *all* the specific diseases within an organization which, separately or together, serve to discourage employees from continuing in their employment. Its remedy lies, of course, in an attack upon those specific diseases which are most virulent but this, in turn, calls for the development of an effective personnel control in all its parts. The success of a company in keeping its people is one measure—and a good one—of its success in developing a wholesome personnel situation which, of course, is the objective of personnel administration.

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## XXVII

### RESEARCH

Point of view. The difference between "scientific management," and "science in management." The attitude of labor toward "scientific management" and "science in management." The attitude of management toward "science in management." Why both labor and management are gun-shy of "psychology," "scientifics," or "research." The history of the development of social service. The essentials necessary for formulating a research program in entity. The importance of basing decisions on facts rather than on opinion. The future of personnel research.

IN SO FAR as this book deals with the instruments and practices of personnel administration, it is felt that the material presented is representative of the best in present-day procedure, although, as we have pointed out, continued progress in this field will yield better and better methods.

In so far as the material presented makes clear the *Point of View of Personnel* it contributes to a better understanding of what is involved in the "Science in Management," and thereby adds permanently to economic stability and social justice.

In order to appreciate the nature of this contribution it is desirable to keep in mind that the point of view of personnel is "Science in Management" and this differs widely in certain particulars from "Scientific Management."

Labor stands committed to anything that it is convinced will add to "Science in Management," in proof of which witness its support of the work of the Personnel Research Federation and its interest in it.

Labor stands opposed to "Scientific Management" as operated in the average manufacturing plant, but its opposition is directed not so much against the application of scientific principles to the handling of materials, as against the lack

of application of scientific principles in the handling of human beings.

Management, on the other hand, is often inclined to oppose the implication that science can contribute anything to the problem of the worker-in-his-work on any other than the materialistic side. And anything that involves a more human point of view is apt to arouse the suspicion of employers, sometimes because of the fear that it will curtail the effectiveness of their authority; sometimes because they question the motives of people who talk in terms of social justice; and sometimes because they doubt that science can ever solve the problem of what makes one man succeed as a worker and another fail.

Meanwhile both Management and Labor are primarily concerned with the present, this year's profits on the one hand, and this year's wages on the other. Anything that looks 5 or 10 or 25 years ahead for results is too remote and too uncertain. Moreover, both Management and Labor are more frequently concerned with holding this or that specific advantage over the other, and gaining another point, than they are in discovering new facts, the significance of which may not be predetermined.

At the same time many individuals have in various situations advanced claims for scientific or psychological "systems" that not only could not be fulfilled, but were from the beginning doomed to failure. Such experiences have proved both costly and irritating and have made individuals and groups within industry "gun shy" of the man who uses the words "psychology," "scientific," or "research."

In the business world it is far too common a practice to claim too much for things we have to sell. The patent medicine that will cure all human ills is not confined to 4 oz. bottles wrapped in a half-pound of testimonials. Correspondence courses that will boost you from the bench to the throne while you wait, bookkeeping devices that will make all your liabilities into assets, mind-reading experts

who can run your employment office on absent treatment methods, all rely on a clever *misstatement of the facts* to convince you that you should buy.

Meanwhile the Manager posts a "No Smoking" rule outside of his office and blames the Fire Marshal for the regulations, while he smokes to his heart's content within. The Production Manager blames the Manufacturing Department for his failure to keep his promise dates on deliveries. The Manufacturing Superintendent blames the Purchasing Department for low-grade material when his "material scrapped in process" runs high. The Purchasing Agent blames transportation when stocks run out.

Interdepartmental bickering is the symptom of this sparring for points which is frequently the unfortunate outgrowth of departmental competition. This sparring for points leads to the use of facts and the search for facts, not for the purpose of arriving at the truth but for the purpose of making a good showing.

Obviously this is too severe a picture to present unqualified, for in many advertising companies the purpose is not to claim more than the nature of the commodity warrants, and in some Manufacturing Plants the spirit of cooperativeness is greater than the tendency to "pass the buck." Nevertheless, these tendencies in the business world, to work in the present, to adopt a theory and then attempt to justify it, and to distort the truth for individual gain, do have a definite influence upon any effort that may be made to establish in the business world the function and technique of long-time personnel research based on honest scientific procedure.

The history of the development of Social Service reveals what slow work it is at best to persuade any single generation to remodel its historical ideas. The whole concept of Personnel Research in its relation to the worker in his work is a comparatively new idea. That it should be undertaken on the basis of scientific procedure is then a difficult concept to put across in industry.

In considering worth-while research in personnel it is important to recognize the fact which we have endeavored to emphasize over and over, in this book, that it is the *worker-in-his-work* that we need to know about. Also we have stated again and again that workers differ one from another and that occupations differ, and that the worker and the work are constantly subject to change. All of this means that the problem is limitless, that it may very well challenge the very best knowledge and thought available and that it must be approached only after we have accumulated those facts already established regarding the worker on the one hand and the work on the other hand. We must recognize, too, that we are searching for more *facts* and that it is only painstaking effort that establishes new facts. We cannot hope for success if we start out with a point of view which reasons that the twelve-hour day means more production than the eight-hour day because it is four hours longer, and that more production means more pay to the worker, and that more pay is what the worker wants, therefore, what the worker wants is the twelve-hour day.

Managers and executives are far too prone to see in the immediate situation confronting them a possible difficulty which could be overcome if certain things were true. In the stress and strain of their daily problems they frequently become arbitrary in their decisions and in their own minds set up as facts those things which if they were true would remove the immediate difficulty. The most unfortunate outcome of this procedure is that thereafter they continue to believe in the correctness of their conclusions and to insist that their organization accept these arbitrary decisions as facts and that they operate on that basis in the future.

All along the line from the chief executive down through the organization there is a danger that authority will tend to develop intolerance, and intolerance obstructs vision as effectively as a blind-fold.

In formulating a research program in industry it is imperative that the executive and supervisory force shall have

a sympathetic appreciation of what it is all about. They must have the vision of the purpose and aim of this scientific approach to the problem of knowing more about the worker-in-his-work.

In a company employing 20,000 individuals a good deal of publicity was given to the fact that Personnel Research was to be undertaken. At the same time there was, as the outcome of some difficulty in Labor Relations, an effort being made to establish an Industrial Democracy plan of Employees' Representation. In drawing up the laws which should govern specific cases, one of the executives proposed that the following plan be incorporated.

"In our National Government—the highest type of Democracy known today—loyalty to the Country is one of the conditions of citizenship, and he who works to injure the Country or to arouse others to injure it, or he who acts or incites others to act as an opponent of the Government is considered an Anarchist, and is dealt with accordingly. If then, we are now, within this Organization of our Company, to set up a true Industrial Democracy we must recognize that loyalty to the Company is a condition of Industrial Citizenship and that the employee who opposes the rules of the Company is instigating confusion and disorder and lawlessness, and is thereby debarred from future employment."

There is no occasion to doubt the sincerity of purpose of the executive who proposed the incorporation of this statement in the Industrial Democracy Manual. However, he was effectively blindfolded for he was attempting by the utilization of the emotion of fear to safeguard the Company against future labor trouble. He had failed to see in the strike just settled, when a score of irritating annoyances led men to ask for relief and relief was denied them, that then they became angry, and that when angry they were ready to fight and that when ready to fight the fear of losing their job had no influence on them whatever.

It is not our intent to discuss here the many controversial



questions in this subject of labor relations, but rather to point out that this executive knew nothing of *what was in the minds of the workers and as little of the unfortunate conditions of work* that had influenced them to that state of mind. Therefore, there was little hope as far as he was concerned for the new Department of Personnel Research. Actually within six months of its establishment this Department was wiped out, with the first sign of the industrial depression through which we have just passed. His mind was closed. His method was wrong, for he was attempting to benefit his company without a knowledge of the facts that were available to him. A scientific procedure would have trained him first to get the facts, to organize and classify them and to analyze them, in this case in the light of what was in the minds of these particular workers in their work. The point we wish to make here is that modern scientific procedure is frequently foreign to the habit of thinking of a certain group of managers and executives and that in so far as such a procedure comes to be understood and accepted by those in authority it is worth all that it costs many times over, regardless of the direct results obtained by the research.

The point of view of science does not permit us to base decisions on opinion alone when facts are available. But intolerance bred of authority has produced too generally a closed attitude of mind.

If, by the introduction of a scientific study of human beings at work in any organization, it is possible to give to the executive and supervisory force some appreciation of real scientific method, and to create some interest in it, much good will have been accomplished by that fact alone.

Meanwhile research is essential to industrial progress. It promotes inventions; it protects against charlatanism. It means a willingness to accept what is good; a willingness to discard what is worthless. Research provides the basis for taking the next step in advance or shows that what

seemed a basis is really unsound. In either case, research contributes to industrial progress.

In many cases, industry has recognized its need for research. It maintains close connection with university laboratories. It studies scientific papers. It sends students to the colleges. It even maintains its own research laboratories where impartial investigation is conducted by scientific men. In these ways, industry shows its appreciation of the fact that discovery is the basis of progress and that leadership requires an immediate connection with discoveries as they are made.

Research in personnel has, in some cases, been recognized to be as essential as research in chemistry. The problems of human engineering and of management require research. They cannot be solved by the dogmatic assertions of self-professed experts in human nature. They cannot be solved by intuition any more than the weight of a new element can be determined by guesswork. The problems arising in the field of industrial personnel must be approached from the point of view of research, of impartial investigation, if there is to be a sound basis for labor management. Any insight into the methods of scientific procedure inspires tolerance and open-mindedness.

As for the field for personnel research in industry there is no limit to the possibilities. Throughout the foregoing chapters suggestions have been made which may well form the basis for many years' research. The ground covered in any particular company must be determined by the type of organization and the opportunity opened for research within it.

The further study and analysis of occupations, the demonstrated Capacity of the worker and his Interests all await careful and painstaking research on a long-time basis. The historical and personal record provided in the Qualification Card only suggests vague possibilities of what may later constitute valuable research in human behavior based on the influence of inheritance and environment.

We must continue to select and place and train and promote employees on the basis of what we now know until more can be discovered. We must operate our offices and our sales and manufacturing forces of people-at-work with rules and organization and discipline adapted according to our best knowledge to the best interests of society, but we must not assume when the good of society demands harsh treatment of the individual that we have contributed in any way by such treatment to solving that individual's problem. Nor may we be satisfied with arbitrary explanations of individual differences, even when the individual is one of the less favored of the group. Physical and mental limitations that are now considered beyond our power to correct, will in many cases be subject to solution by pursuing research. Many individuals who now rise to certain levels of success and then slacken or go back may later, by means of Psycho-Pathology and Mental Hygiene methods, be saved for still greater success.

Industry alone will not be willing, in the near future, to carry the burden of so broad a field of research. Nor will it ever be asked to do so. But industry must sooner or later contribute its part in cooperative efforts to this end. To that group which first demonstrates this willingness to do something and shows its appreciation of what needs to be done and gives evidence of its good faith, there is already available a fund of knowledge, a cooperative force of scientific men and finances ready to assist in carrying on such work.

Industry cannot stand aside, for there are too many symptoms of what Carlton Parker called a "diseased industrialism," for which industry may or may not accept the blame but for which industry must pay whether willing or not. The problem cannot be side-stepped or covered up. Industry has its obligation to society. Social Science forces the obligation home. The alert business man of tomorrow will see it as a necessity and those who see it first will prosper. The increase of human happiness and the

more equitable distribution of it among the workers-in-their-work is the aim. Personnel Research is the instrument. Fortunately there are some companies which have already assumed their obligation, and in such cases they are able to see that even now it pays in terms of profits as well as in terms of sound citizenship.

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## APPENDIX

1. THE EXPERIMENTAL DEVELOPMENT OF THE GRAPHIC RATING METHOD
2. A PLAN OF APPRENTICE TRAINING
3. LABOR TURNOVER
4. TYPICAL REPORTS AND SURVEYS



## I. THE EXPERIMENTAL DEVELOPMENT OF THE GRAPHIC RATING METHOD

- I. Introduction
  - A. General Purpose of Experiment
  - B. General Summary of Results
- II. Experimental Procedure
- III. Results of the Experiment
  - A. The Consistency of Foremen's Ratings
    - 1. Consistency in Average Ratings Month to Month
    - 2. Consistency in Rating Same Workers Month to Month
  - B. The Agreement between Foremen on Same Workers
    - 1. Agreements as Shown by Correlations
    - 2. Agreements as Shown by Final Ratings
  - C. Differences between Foremen in Rating Tendency
  - D. Rating Standards in Different Qualities
- IV. The Use of the Graphic Rating Scale

### I. INTRODUCTION

This bulletin presents the results of experimental work with the Graphic Rating on Workers, which was conducted in three companies in Ohio.

The Graphic Rating Method, as used in the Graphic Rating on Workers, is a method for securing the judgment of superiors on subordinates. Other methods, apparently similar, have appeared in the past, yet this method includes two features which have not been brought together heretofore, and which are basic on the Graphic Rating Method. These features are:

1. The person who is making the judgment is freed from

direct *quantitative* terms in making his decision of merit in any quality.

2. The person who is making the judgment can make as fine a discrimination of merit as he chooses.

These two facts eliminate the restrictions on natural judgments which other rating methods impose.

#### A. GENERAL PURPOSE OF EXPERIMENT

It was the purpose of the present experiment to discover:

1. The reliability of judgments secured by the Graphic Rating Method
2. The general practicability of the method
3. Any weaknesses in the present scale that should be corrected
4. Whether the need for "interpretation," due to differences in standards of judgment on the part of different executives exists when the Graphic Rating Method is used
5. General tendencies in total ratings and in ratings on particular qualities, both with reference to central tendency and form of frequency distribution.

#### B. GENERAL SUMMARY OF RESULTS

1. Ratings made by the Graphic Rating Method are highly reliable. This is evidenced by the close relationship between the ratings on the same men by the same judge for different months and by the close relationship between the ratings on the same men by different judges.
2. The method has been found simple and practicable in actual use.
3. The need for a fourth adjective on the scale for the quality "Cooperativeness" was clearly demonstrated.
4. Large differences were found in the rating tendencies or standards of different foremen. These differences are important enough to necessitate the use of the statistical method of correction described in the Chapter on Ratings.



This method of correction appears adequate for the adjustment of differences in rating standard on the part of different judges.

## II. EXPERIMENTAL PROCEDURE

In subjecting the Graphic Rating Method to a thorough experimental trial, ratings were secured on the following kinds of workers:

- (a) Office Clerks
- (b) Maintenance Workers—Carpenters, Millwrights, Plumbers, Electricians, Motor Repairmen, Boilermen, Painters and Laborers
- (c) Tool Designers—Draftsmen, Detailers and Tracers, and Machine Designers
- (d) Machine Shop Operators—Drill Press Operators, Lathe Operators, Hand Screw Machine Operators, and so forth
- (e) Assemblers—Small and Large Machine Parts

Practically all the workers in the above groups were rated by at least two foremen or supervisors. For certain groups it was possible to have the same workers rated for each of three months by the same foremen.

Care was taken to explain to the foremen and supervisors the purpose of the Graphic Rating Method as well as to instruct them how to make out their reports in accordance with the standard directions.

In all, 1,446 ratings were secured in the course of this experiment.

## III. RESULTS OF THE EXPERIMENT

### A. THE CONSISTENCY OF FOREMEN'S RATINGS

Assuming that the same workers are of about the same general value to the company in one month as they are in the next month, we should expect a foreman's ratings of the

same men to be consistent from month to month.

A foreman's ratings would be considered to be consistent

1. If he gives approximately the same average ratings to his men as a group in one month as in another.
2. If he rates his men in approximately the same order from month to month.

#### 1. Consistency in Average Ratings Month to Month

Results bearing on consistency in ratings from month to month are available for nine foremen who submitted ratings on their workers for three successive months.

The *rating tendency* of each of these foremen is shown by the comparison given in Table 19 of the three monthly average ratings given to the same workers:

TABLE 19  
MONTHLY AVERAGE RATINGS OF WORKERS BY FOREMAN

Rated by	Average Rating First Month	Average Rating Second Month	Average Rating Third Month
Foreman A .....	58.9	60.9	61.0
Foreman B .....	52.2	51.1	53.4
Foreman C .....	51.6	50.7	52.2
Foreman D .....	46.2	46.8	49.2
Foreman E .....	54.3	58.6	60.0
Foreman F .....	50.1	58.1	52.0
Foreman G .....	38.6	45.9	44.5
Foreman H .....	46.3	46.3	55.3
Foreman I .....	55.3	43.7	45.5

The average ratings given by Foremen A, B, C, and D are remarkably stable from one month to another. Foreman E tends to give a slightly higher rating each succeeding month. Foreman F rates his men approximately the same during the first and third months while he rates them higher during the second month. Foremen G and I submit similar average ratings for the second and third months which differ from the average ratings for the first month. Foreman H

rates his men on the same level for the first two months but rates them higher for the third month.

The practical conclusion resulting from this study is that great care must be taken in interpreting the rating results for each foreman at each periodic rating, until his rating tendency has become stabilized. Ratings from two or three months for a given foreman can be combined for the purpose of establishing more definitely a foreman's rating tendency and in computing a "Key for Final Ratings" only in case the rating tendency remains sufficiently constant. Hence it is necessary that a careful analysis be made of the ratings of each foreman at each periodic rating.

## 2. Consistency in Rating Same Workers Month to Month

The *consistency* of these foremen's ratings from month to month is shown by the *agreements* between the individual ratings given to the *same workers* in the first month and those given in the second and third months by each of the foremen. These agreements are evaluated in terms of the coefficient of correlation. The correlations are shown in Table 20. A correlation over  $+ .75$  is considered high.

TABLE 20  
CORRELATIONS OF MONTHLY RATINGS OF WORKERS BY FOREMAN

Rated by	Correlations between First and Second Ratings	Correlations between Second and Third Ratings
Foreman B .....	$+.91$	$+.96$
Foreman H .....	$.88$	$.92$
Foreman C .....	$.85$	$.86$
Foreman G .....	$.84$	$.92$
Foreman I .....	$.84$	$.90$
Foreman D .....	$.82$	$.90$
Foreman F .....	$.62$	$.66$
Foreman E .....	$.60$	$.82$
Foreman A .....	$.52$	$.88$
Average Correlation .....	$+.76$	$+.87$

The average correlation between the ratings given in the first month and those given in the second month by these nine foremen is  $+ .76$ . A correlation of  $+ .76$  is high and indicates that the ratings of these foremen meet the requirements of consistency.

The average correlation between the ratings given in the second month and the third month, is, however, much higher,  $+ .87$ . The ratings of these foremen are found to become even more consistent from month to month.

This tendency toward greater consistency in the later ratings is also demonstrated by the fact that the correlation for each and every foreman is higher for the second pair of ratings than it is for the first pair.

Only one of these foremen (Foreman F) exhibits an unsatisfactory degree of consistency in his ratings. The correlation for the first and second months for this foreman is  $+ .62$  and for the second and third months is  $+ .66$ . It is probable that with further practice and instruction this foreman's ratings will also show a satisfactory degree of consistency.

Correlations of at least  $+ .75$  should be attained before a foreman's ratings are pronounced "Satisfactory in Consistency." Ratings submitted by foremen who prove to be inconsistent in their judgments should be discarded because such ratings are unreliable.

This measurement of consistency from month to month is a definite and practical method whereby a foreman's ability to judge his workers can be determined. By this method foremen can be checked up on the consistency of their judgments of men.

#### B. THE AGREEMENT BETWEEN FOREMEN ON SAME WORKERS

A foreman should not only be consistent in agreeing *with himself* in the ratings he gives to the same workers from month to month, but he should also agree with other foremen

whose ratings of the same workers are equally consistent and reliable.

### 1. Agreements as Shown by Correlations

Ratings of the same workers by three pairs of foremen for three successive months as well as the first monthly ratings of the same workers by five additional pairs of foremen are available. The correlations are as given in Table 21.

TABLE 21  
CORRELATIONS OF RATINGS OF SAME WORKERS BY PAIRS OF FOREMEN

Agreement between	First Month	Second Month	Third Month
Foremen A and F.....	+.33	+.40	+.50
Foremen H and D.....	.78	.82	.78
Foremen B and E.....	—	—	.90
Foremen J and K.....	.82	—	—
Foremen L and M.....	.63	—	—
Foremen N and O.....	.80	—	—
Foremen N and P.....	.75	—	—
Foremen O and P.....	.84	—	—

The lower correlations between Foremen A and F are due to the lack of "consistency" found in the ratings of Foreman F. It is important to note that with the improvement in the consistency of Foreman F's ratings (noted in the preceding section) we find an increase from month to month in the correlations between his ratings and those of Foreman A.

The correlations between Foremen H and D are consistently high for each of the three months.

The correlations between Foremen B and E for their third monthly rating is very high (+.90). Data are not available for previous months.

The correlation between Foremen J and K for their first monthly rating is high (+.82). (These two foremen had not yet submitted their second and third monthly ratings.)

The correlation between Foremen L and M was +.63.

Their ratings were in close agreement with the exception of a radical disagreement concerning three of their workers.

Foremen N, O, and P rated the same workers. The correlations are uniformly high. The correlation between Foremen N and O is  $+.80$ ; between Foremen N and P is  $+.75$ ; between Foremen O and P is  $+.84$ . The ratings given by three foremen were averaged and it was found that Foreman N's ratings correlated  $+.93$  with the average. Foreman O's ratings correlated  $+.95$  and Foreman P's ratings correlated  $+.93$ .

In general, we find a close agreement between foremen who rate the same workers, provided that each foreman's ratings are consistent.

## 2. Agreements as Shown by Final Ratings

Agreements in the ratings given to the same workers by two foremen can also be determined by comparing the Final Letter Ratings given to those workers by the two foremen.

The Final Letter Ratings are derived in terms of a five-division scale, i. e., A, B, C, D, and E. (A represents a very high rating and E a very low rating).

Chart I, in Figure 75, presents the results of the first monthly ratings given to a group of carpenters and paint-

TABLE 22  
FINAL LETTER RATINGS OF GROUP OF CARPENTERS AND  
PAINTERS BY TWO FOREMEN

Agreements and Disagreements	Number of Cases	Per Cent of Cases
Perfect agreement .....	25	52
Disagreement of one letter step.....	21	44
Disagreement of two letter steps.....	2	4
Disagreement of three letter steps.....	0	0
Disagreement of four letter steps.....	0	0
Total number .....	48	100

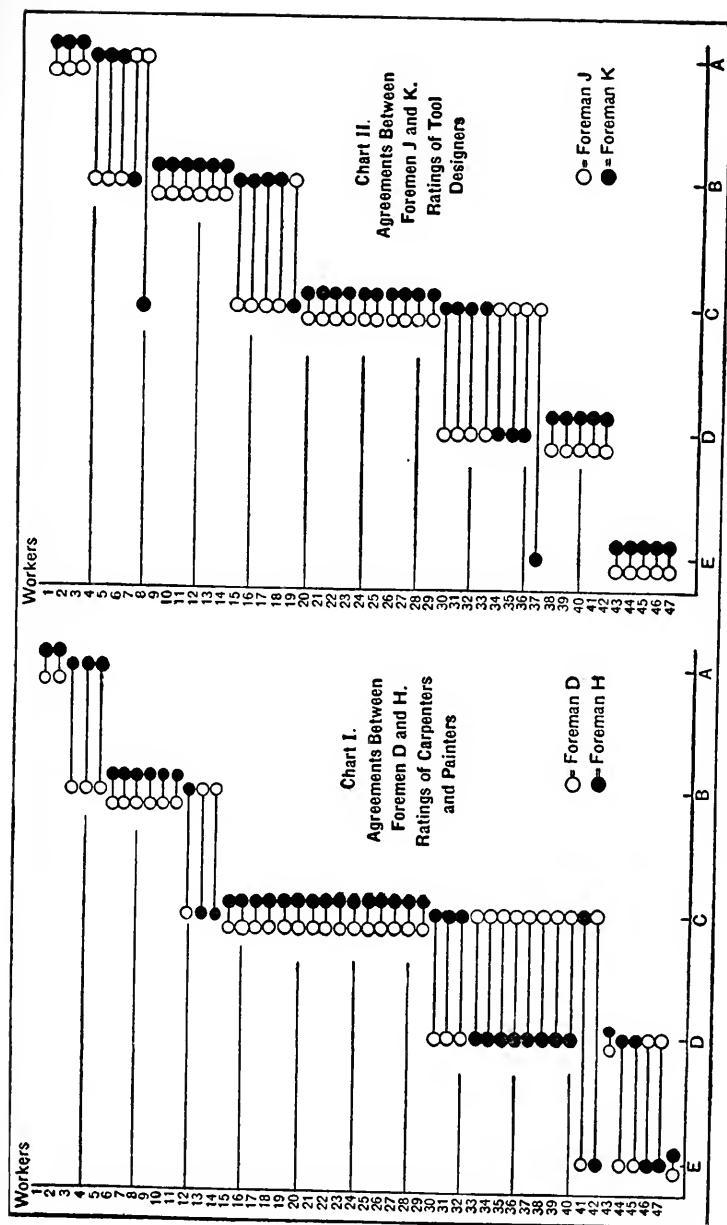


Figure 75: Final Letter Rating comparisons

ers by Foremen D and H. Inspection of the agreements and disagreements shown on the chart is summarized in Table 22.

These two foremen disagree radically on only two carpenters. They agree within one letter step on 46 of the 48 carpenters. In general it is apparent that Foremen D and H are in close agreement concerning the respective merits of these carpenters and painters.

Chart II, in Figure 75, shows the results of the first periodic ratings given to 47 tool designers by Foremen J and K. A summary of the agreements and disagreements is given in Table 23.

TABLE 23  
FINAL LETTER RATINGS OF 47 TOOL DESIGNERS BY TWO FOREMEN

Agreements and Disagreements	Number of Cases	Per Cent of Cases
Perfect agreement .....	29	62
Disagreement of one letter step.....	16	34
Disagreement of two letter steps.....	2	4
Disagreement of three letter steps.....	0	0
Disagreement of four letter steps.....	0	0
Total Number .....	47	100

These two foremen disagree radically on only two tool designers. They agree within one letter step on 45 of the 47 tool designers. Foremen J and H are in close agreement concerning the value of these tool designers.

Agreements within one letter step on the A, B, C, D, E scale may be considered satisfactory for all practical purposes. Disagreements of more than one letter step are considered as evidence of unsatisfactory ratings whenever they occur.

The study of agreements and disagreements between foremen and supervisors has led to the following generalizations:

1. In general, the close agreement between foremen con-



cerning their workers justifies the use of the ratings as an index of the general value of employees.

2. Ratings secured from two supervisors can be used safely for permanent records if they agree within one letter step on the final letter scale. Whenever a disagreement of two or more letter steps occurs a conference should be held with the disagreeing judges and re-ratings secured.

#### C. DIFFERENCES BETWEEN FOREMEN IN RATING TENDENCY

Tendencies on the part of one foreman to rate all of his employees too high and of another to rate all of his employees too low were discovered by studying the rating tendencies of various foremen.

The chart in Figure 76 shows the percentage frequency distribution of the Total Ratings given by seven supervisors and foremen. It is apparent that Foremen A and S tend to rate their workers in the extreme upper range of the scale, i. e., for the most part over 55 points. The ratings submitted by Foremen D and R illustrate a tendency to rate in a much lower range of the scale.

These differences are not due to actual differences in the abilities of various groups. For example, Foremen A and F rated the same workers, yet Foreman A rates them high while Foreman F rates them much lower. Foremen H and D also rated the same workers and likewise they fail to agree in the general level of ratings given. It is important to note, however, that there need be no fundamental disagreement between two foremen who exhibit different rating tendencies in rating the same workers. They may and usually do rate the same workers in the same relative order.

These differences in rating tendencies show the need for reducing all ratings to a common basis. This is accomplished by the conversion of Total Ratings into Final Letter Ratings by the use of the method of statistical correction. In this way one foreman's ratings may be compared with another's without confusion. Without such corrections, it is

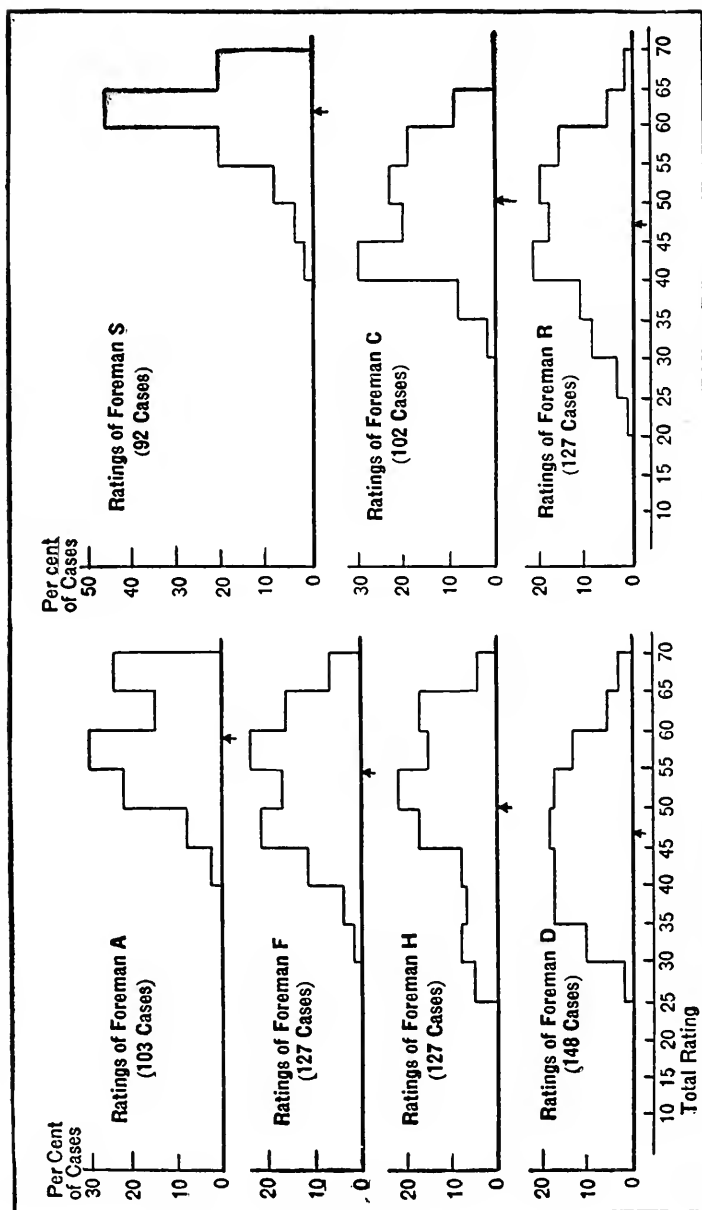


Figure 76: Percentage frequency distribution of the Total Ratings given by seven foremen

difficult if not impossible to make accurate interpretations of ratings.

Unless properly used, the method of correction introduces an error of some importance. Reducing all ratings to a common basis is impossible in the case of an executive who has nothing but either very high grade or very low grade workers. In such case, a proper balance is secured by asking him to rate selected persons other than those in his department.

Experience has shown that the chance of a superior having as many as 40 men of exceptional ability is rather remote. However, if the condition is suspected, it should be investigated. If it is believed that any foreman is rating all of his workers high because of a real superiority of his workers, the procedure is as follows:

(a) Secure ratings from this foreman on individuals who are known to be of mediocre ability. If he gives these mediocre individuals ratings corresponding to the middle group of his own subordinates, the correction method could be applied to his ratings with little or no error.

(b) In case it appears that his ratings are due to the fact that his workers as a whole are exceptional, it would be well to prepare a list of names for this foreman to rate which would include a random distribution in ability of workers in the same kind of work. This data could then be used as the basis for calculating this foreman's "Key to Final Ratings." The true ability of his own workers would then be adequately revealed.

#### D. RATING STANDARDS IN DIFFERENT QUALITIES

The chart in Figure 77 has been prepared to show the distribution of the scores in each of the seven qualities. The figures in this chart give a percentage frequency distribution of 1,445 Graphic Ratings for each quality of the scale and for the Total Rating.

It will be noted that the majority of the ratings cluster

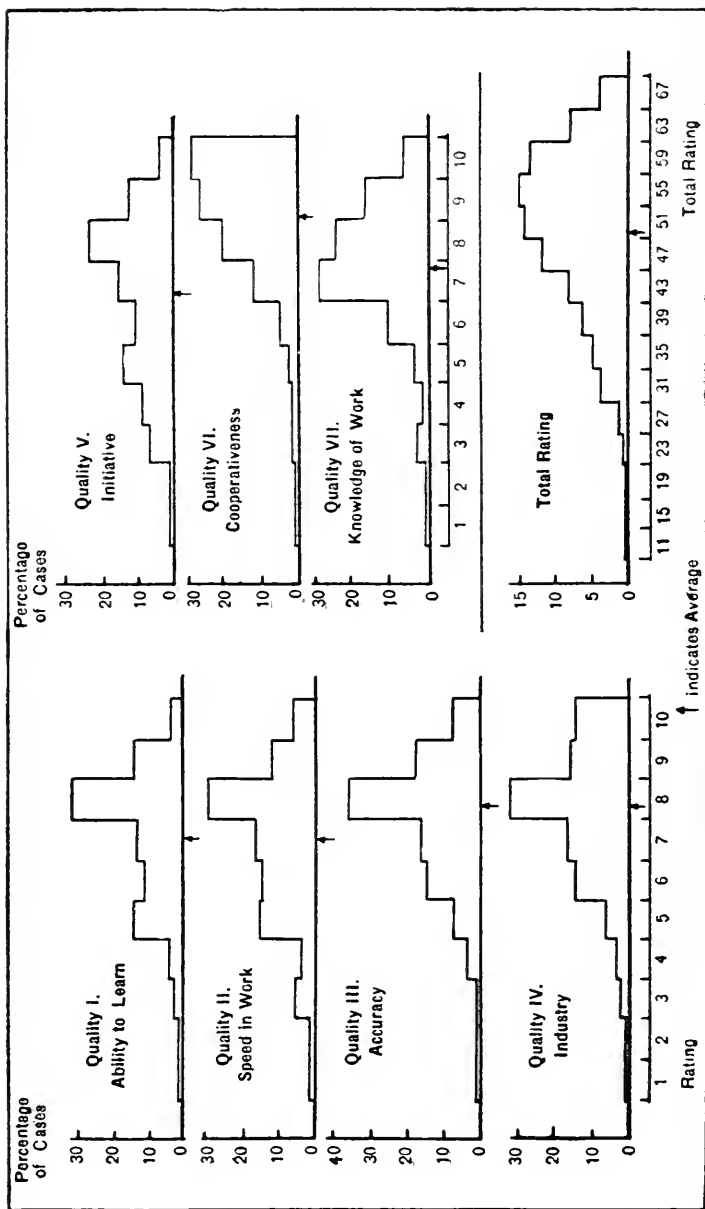


Figure 77: Percentage frequency distribution of 1,445 Ratings for each quality and for Total Rating

around a rating of 6, 7, 8, and 9, with the exception of the ratings for Quality VI, Cooperativeness. The ratings for this quality are much higher—the majority of the ratings being at 9 or 10. This indicates that too many perfect ratings are being made on this quality, a fact that prevents an exceptionally cooperative worker from being given due recognition for his superiority in this quality.

In the "Graphic Rating Scale for Foremen," three descriptive adjectives were used for "Cooperativeness." "Highly Cooperative" was placed at the upper end of the line and "Cooperative" was placed one quarter of the distance down the line. The distribution of the foremen's ratings on cooperativeness clustered around score 8 with a corresponding decrease in perfect ratings.

It seems clear that four descriptive adjectives should be used for Quality VI in future editions of the "Graphic Rating Scale."

The percentage distribution of 1,445 Total Ratings reveals a tendency for the Total Ratings to fall between the limits 47 to 62. The average Total Rating is 51.

This curve will be useful for reference in comparing any particular foreman's rating tendency with the general rating tendency.

#### IV. THE USE OF THE GRAPHIC RATING SCALE

The attitude of foremen and of workers toward the Graphic Rating Method is of considerable significance. Shop executives who have used the Graphic Rating Method have manifested a marked interest in the method and have given their hearty cooperation in preparing their rating reports. The statement of the purposes of the ratings is generally sufficient to arouse a foreman's interest in the possibilities of the rating method. Actual use of the scale together with a knowledge of his rating tendency, his agreement with another foreman, and so forth, then brings the foreman to

realize the importance of the information the Rating Method has made possible.

The following experiences are illustrative:

1. A section head states that the Rating Scale made him give greater consideration to his workers as individuals in the assignment of work. This section head also attributes part of his own progress during the past year to improvement of his weak points as revealed by a use of the Rating Scale on himself.

2. One foreman who was not friendly to the Rating Scale when it was first introduced, voluntarily remarked at the end of three months that the Scale had been used in bringing the merits of his workers to the attention of the higher executives.

3. One executive states that the Graphic Rating had greatly assisted him in adjusting the wages of certain dissatisfied workers. This executive emphasizes the confidence he felt in making these wage adjustments in contrast with his feeling under similar circumstances when Graphic Ratings, Trade Test Ratings, and so forth, were not available.

Less tangible evidence is available concerning the attitude of workers toward the Graphic Rating Method. A number of the workers voluntarily expressed their approval of the idea following the first periodic rating. One of these workers said that he wished he had known a year in advance just what qualities his supervisors considered to be important. He felt that he could have improved himself in those qualities he considered himself weakest in.

No cases of objection to the method have come to our attention.

## 2. A PLAN OF APPRENTICE TRAINING

- A. The Field of Apprentice Training
- B. Certain Shortcomings of Apprentice Training Methods
- C. Essential Features of the Proposed Method
- D. Application of the New Method in a Specific Situation
- E. General Applicability of the Plan with Adaptations
  - Exhibit I. Construction of Apprentice Manuals
  - Exhibit II. Divisions of Apprentice Course in Machine Shop
  - Exhibit III. Apprentice Manual

### A. THE FIELD OF APPRENTICE TRAINING

This section discusses the development of a method of apprentice training and describes its application in one company.

Specialization of work incident to modern production has resulted in the disappearance of old opportunities for general trade training. The time has passed when the apprentice became a general tradesman by a natural process of absorption of trade knowledge and trade skill from the journeymen with whom he was associated. But the need for men possessed of all around trade ability persists, and development of means for meeting this need constitutes one of industry's real problems. To meet the problem, organized training is essential for the development of the desired trade proficiency.

Very many tradesmen of today, it is true, laboriously gained their skill and experience by haphazard methods, the most prominent perhaps being the method of learning each series of operations and each class of work in a different

plant—making advancement synonymous with change of employer. The individual and social waste of these hit-and-miss methods of acquiring skill is obvious. They emphasize the need that apprentice training be planned, that it have a goal and direction, that it consciously aim at the development of all around trade skill.

Apprentice training must be supplemented by education designed to make of the apprentices better all around men and citizens. This is the function of the public schools. From the company's standpoint, workers and executives alike are more valuable if they have gained broad knowledge and outlook. From a social point of view, the apprentices, who have ordinarily stopped short in their schooling, should receive at least a minimum of training for citizenship and preparation for their opportunities and responsibilities as workers and citizens. The company should make certain that the public schools are giving to its apprentices this necessary training in citizenship.

#### B. CERTAIN SHORTCOMINGS OF APPRENTICE TRAINING METHODS

Many attempts at apprentice training have met with failure and been abandoned. Many other courses are merely tolerated as necessary expenses bringing doubtful returns. This unsatisfactory status is attributable to the waste involved in present methods. Outstanding losses that can be remedied are due to the following conditions:

1. *The time of training is needlessly and uniformly prolonged for all apprentices; there is failure to recognize that one boy may be able to learn as much in a year as another learns in three or four years.* A four-year course is set up, and regardless of ability, aptitude, or application, the apprentice must spend four years (or a few months less as reward for special merit). The reason for the four-year limit is possibly that it takes the *average* boy that long to



learn the trade; or, more frequently, perhaps, that "it always has been that way." As a result of this procedure few boys are willing to enter so long a course; many that do enter become discouraged and do not finish; and of those who do finish, part have had insufficient training and part have wasted time, being held back to keep step with their slower fellows.

2. *Turnover among the apprentices is excessive; adequate incentives are not provided to hold the apprentices.* The inability to hold apprentices may be due, in addition to the prolonged periods of training, to any or all the causes of turnover operating with the work force as a whole—insufficient pay, unsatisfactory working conditions, special grievances, and so on. The expense involved in losing a worker who has been given weeks or months of training is manifest.

3. *Poor methods of instruction are common, involving waste of time and ineffective training.* Just as one method of machining a casting may require twice as long and cost twice as much as another method, so it is with different methods of making an unskilled novice into a skilled tradesman. Too little attention is given to wasteful methods of training.

4. *Apprentices are poorly selected and hence many fail to make good.* Aside altogether from the time of the course, the turnover, and the methods of instruction, a training course is assured of failure if careful judgment is not exercised in the selection of its personnel. A large amount of time, effort, and money is expended in the vain attempt to train boys for work for which by nature they are ill suited.

The first three of these problems are involved in the plan of training here described. The fourth is to be met by the use of advanced practice in the employment office—

careful interviews, tests, and study of the individual's qualifications.

### C. ESSENTIAL FEATURES OF THE PROPOSED METHOD

Two guiding principles characterize the method under discussion:

1. Adequate provision is made for the wide differences in ability among apprentices.

2. The immediate aims of the apprentice course and the ground to be covered are made quite definite and specific in the minds of those concerned—apprentice, apprentice supervisor, and management.

These principles in operation have led to the following distinctive features of the plan:

1. The progress of an apprentice is determined by the ability he shows in his work. There is no set time for any part of the course.

2. Proficiency as a basis for advancement is measured by job tests and oral examinations; also by ratings given by foremen and supervisors.

3. The specified job tests and trade questions serve not simply as a measure of progress. They are at the same time goal, stimulus, and means of instruction. The presence of known specifications of accomplishment places a definite goal before instructor and students. This serves both to stimulate the apprentices and to give point and direction to the training, thus markedly shortening the time required in acquiring skill.

Manuals made up of job tests and questions are the essential basis of the new method. They define what the course includes; they serve as the hurdles to be reached and cleared, they measure the progress and ability of the apprentices.

#### D. APPLICATION OF THE NEW METHOD IN A SPECIFIC SITUATION

The working out of this general method in a particular plant will be described in some detail. The description of the method as applied in one plant will serve to illustrate its feasibility and suggest the possibilities of similar adaptations to varied industrial training problems.

The application has been worked out in the machine shop of a plant manufacturing stationary engines and large machinery. The shop has about 600 workers. The products of the plant are varied and very little of the work is done in a routine, repetitive way. The attitude both of workers and supervisory force is friendly to the development of training methods; members of the union cooperated at every step in the construction of the course.

Work in this machine shop is of such a nature that men possessing general trade skill and all around experience are of great value. The desirability of developing skilled machinists familiar with the methods and products of the Company has been recognized, especially for providing: (1) source of supply for supervisory force; (2) skilled workers for assembling and erecting departments; (3) skilled workers for repair jobs and field erecting; (4) skilled and intelligent machine tool hands. It is further recognized that without specially organized methods of training, little chance is given a young worker to become more than a specialized machine hand or bench worker.

Certain conditions were imposed upon the course by the characteristics of the plant.

The outstanding features of the course, as worked out, follow:

1. *Training is given on the job.* Apprentices are distributed through the departments of the shop on regular production work, save that one half-day a week is spent in classroom work at the public high school.

The work in the shop falls into 19 natural divisions, one

for each kind of machine tool and department. The apprentice progresses through these 19 divisions in accordance with an arranged plan and in keeping with his ability.

The school instruction is directed at both the primary and secondary aims of the apprentice course—that is, at training for a skilled trade and for citizenship. The class work includes, in addition to mathematics, drawing, and shop theory, a certain amount of general work in economics, hygiene, and community life. School attendance is on company time.

2. *Advancement takes place according to demonstrated ability, not according to time spent.* Promotion from each division of the course to the next division occurs whenever the apprentice has satisfactorily completed the work specified for the division he is in.

3. *Apprentice manuals are used containing job tests and trade questions.* (See the sample manual on page 519.) The manuals are of service in several directions.

(a) *They serve as specifications of accomplishment for each division of the training course.* The apprentice manual defines the ground to be covered in a given division of shop work. The work of a division is subdivided into several sections, each including a typical job and questions on the particular operations and duties involved. Thus, the apprentice has before him, when he enters upon a new part of the training, a definite statement of what he is to aim at and accomplish.

The work of a division may be almost solely a matter of acquiring information rather than doing particular jobs, in which case the manual will contain questions, drawings, and specifications as to the ground to be covered and will omit the use of performance job tests.

(b) *The material of the manual is used to measure progress.* If apprentices are to be advanced according to pro-

iciency, a yardstick is necessary for measuring that proficiency. A satisfactory measure should be definite and objective (free as possible from personal bias or prejudice); it should measure the ground actually covered; it should, when possible, be known to the apprentice in advance. Job tests and trade questions meet these requirements. While the tests represent by no means everything the apprentice has learned, they are typical samples placed at strategic points, and the questions insure a certain breadth beyond the performance of the test.

(c) *The manuals are an incentive and stimulus to interest.* The presence of a definite goal to be attained in itself serves to stimulate. When that goal is at the same time the open door to advancement, its effectiveness is increased. The difference in attitude can scarcely be exaggerated between, on the one hand, the apprentice set at a task with no definite notion of what he is to learn but with the assurance that he must spend, say, three months learning it and, on the other hand, the apprentice given definite operations to master and specified information to acquire, with full understanding that the rapidity of his advancement depends entirely upon himself. In addition, the manual stimulates interest by calling attention to the important details of the work in hand. It encourages investigation.

(d) *Manuals are at the same time the means of instruction.* The setting of specific jobs and questions places a definite goal before the foremen and apprentice supervisor as well as before the apprentice. All efforts are thus united and lost motion is eliminated.

With the use of manuals as a guide, classroom instruction is at a minimum. The apprentice acquires proficiency almost entirely through his own efforts, directed and stimulated by the manuals. It is assumed, too, that the supervisor will always be available to discuss problems, answer

questions, and guide the apprentices to sources of information.

A view of the actual working of the plan may be had by considering an individual apprentice in his relations to the course. First of all, the terms of the apprenticeship agreement differ from the usual form in the essential provision that "the termination of each period in the course is fixed by the satisfactory passing of specific job tests." *No time period is mentioned.* Rates of compensation also are set for the successive periods according to accomplishment, not time.

The apprentice, having entered upon the apprenticeship agreement, is assigned to the training course of the Personnel Department. He is at once placed on a definite production job appropriate to his ability and calculated to offer the work needed to round out his training. (His status is described as "loaned to production by the personnel department".) A novice would ordinarily be started at tool checking, where he would master the names and uses of tools and become familiar with machine shop surroundings. The usual sequence of work is shown in Exhibit II, on page 519. Upon entering the first division of the course, the apprentice is given a manual covering that particular work. With the manual as a guide the apprentice proceeds, while on production work, to observe and study tools, operations and methods with a view to mastering the prescribed jobs and questions. He learns through doing—directed and stimulated by the manual.

Advancement takes place through the passing of the required job tests and questions. The apprentice is given the test whenever, in the opinion of the apprentice supervisor and foreman, he is sufficiently proficient to warrant it. The apprentice himself is urged to apply to his foreman and apprentice supervisor for examination as soon as he has mastered the questions and thinks he can do the prescribed job. *Before an apprentice is permitted to try the job test, he must be able to answer a certain proportion of the ques-*

tions. The apprentice supervisor examines him orally on these questions (the supervisor has a manual containing answers for his own guidance) and if the required number are answered, the apprentice is given the job test—ordinarily an actual production task. In order to be advanced, the apprentice must complete the job so that it will pass inspection. He is then promoted to the next section of the course or to a new division of the course if he has completed the division in which he has been working.

The apprentice supervisor will keep in close and constant touch with the apprentices on the job. He will follow their progress both in the shop and in the school work; he will give assistance to the apprentices, especially in guiding their reading and showing them sources of information; he will confer with foremen and school instructors; he will obtain periodic (monthly) ratings from foremen as to the standing of each apprentice in a number of important qualities; he will be the active agent in bringing about transfers and changes of rates, and he will keep records for each apprentice showing the ground already covered, ratings received, time spent and rates of pay. The apprentice supervisor is immediately responsible for all personnel matters with respect to apprentices.

#### E. GENERAL APPLICABILITY OF THE PLAN WITH ADAPTATIONS

While the plan of training has been described as applied to a particular type of training course in a particular plant, the essential features appear equally well suited to industrial training generally. The main idea—*provision for the student to progress according to his ability as demonstrated in the mastering of specified tasks which are known to him in advance*—may be as readily worked out for the training of workers as apprentices, as well for office employees as for the factory; as well in a department store as in a steel mill.

Adaptations in the working out of details must, of course, be made. In some instances, performance job tests are not usable and the manuals must be entirely made up of pictures, samples, and questions; in other cases, specifications of accomplishment may be more useful than questions and jobs; in some situations training will be primarily classroom work, while in other cases there will be no class instructions; training will at times be best given on the job and at other times it will require a separate training department.

Whatever be the particular requirements, however, the plan can be so worked out as to make adequate provision for advancement according to individual ability and for the clear specification of goals to be reached. With these provisions a training course takes definite form and makes clear the opportunities and responsibilities of both apprentice and management. The time of training is shortened; the quality of training is improved; the scope of training is widened.

#### EXHIBIT I. CONSTRUCTION OF APPRENTICE MANUALS

Apprentice manuals lie at the heart of this method of training apprentices. The construction of the necessary manuals, consequently, constitutes the first and the most important step in working out the course. The brief description given here of the method used in forming the manuals is to be considered as typical of a procedure that may be used, rather than as a method for general application.

The construction of the manual may be divided into eight steps:

1. *The limits of the division of work to be covered by the manual are definitely set.* It is necessary to determine just what work is included in the portion of the field dealt with and what is excluded. In deciding this matter, all information is useful which defines the particular work considered—usually a single distinct occupation, as lathe hand. Especially valuable are job specifications made in the plant.



Additional help may be obtained from descriptions of the occupation occurring in shop manuals and text-books.

2. *A preliminary examination is made of available information concerning the work under consideration.* Some idea is obtained of the amount and importance of trade information in this particular field, the availability of the information in books and journals, the relative emphasis placed on different phases of the work, and so on. This step in the procedure is intended primarily as preparation for the next. It permits the person who is developing the course (ordinarily the apprentice supervisor) to become sufficiently familiar with the outstanding features of the occupation to be able to confer intelligently with foremen and workers and be in a position to draw upon their fund of information.

3. *Information regarding the work to be included in the manual is obtained from foremen and workers.* By means of a series of talks with tradesmen, by observation in the shop, and by careful balancing of information from different sources, the apprentice supervisor is able gradually to classify and systematize the mass of trade information presented to him. His inquiries must lead, often by circuitous routes, to definite knowledge concerning the nature of the work and the duties of the work, the main subdivisions into which the work falls, the amount of variety in the work and the extent to which some few jobs are typical of others, the time ordinarily required to learn the work, and so forth. It is of the greatest importance, in gathering this information, that the supervisor guide the discussion with the foremen and workers; otherwise much of the material will be irrelevant and useless. The supervisor must know what he is after and ask questions that will get it. It is also important that statements should be checked and weighed and compared; much of the evidence will be found to conflict. In this way a wealth of unorganized information can be got from foremen and workers; the supervisor must sift and organize that part of the information valuable for his purposes.

4. *All material available (principally from books on shop practice) is now worked over in a thoroughgoing way and lists of trade questions are formed on all important aspects of the work.* In order that the questions may cover the field comprehensively, it is well to divide the ground into subdivisions according to the various operations, tools and materials. The careful examination of trade information necessary for an adequate classification of the information and construction of questions, at the same time enables the supervisor to lay out, tentatively, the plan of the manual—the number, arrangement, and contents of the sections.

5. *In conference with foremen and workers, the work to be included in the manual is broken into definite sections and arranged in sequence according to the order in which the work is to be mastered.* Each section is built about a representative job—some task that involves the essentials of a large series of operations or the application of a body of trade knowledge. It is found that the main part of the work can ordinarily be included in a few jobs. These “job tests,” of course, are selected not as including everything in the occupation, but as typical samples that involve the essentials of the work. The job must be such that a foreman is willing to say: “If a boy can do these jobs and do them right, he is good enough to go on to another department. If he can do them, he can do almost any other ordinary job in this department.”

6. *The sections of the manual are prepared.* Each section includes blueprints of the prescribed job of that section and a list of questions bearing more or less upon the work of that section. The number of questions is limited, as long lists would appear too formidable and are unnecessary.

7. *The manual, in tentative form, is presented to foremen and superintendents and discussed with them.* Necessary corrections and revisions are made until the manual is given the final stamp of approval of these shop supervisors.

8. *The manual is then edited for the use of apprentices.* A supervisor's copy is made, identical with the others, save that it includes brief answers to all the questions.

EXHIBIT II. DIVISIONS OF APPRENTICE COURSE IN  
MACHINE SHOP

1. Tool Checking
2. Helping on Large Vertical Boring Mill, Horizontal Boring Mill, Planer, Lathe
3. Floor Erecting and Fitting
4. Bench Work
5. Drill Press (Upright)
6. 14-inch to 24-inch Lathe
7. Tool Grinder
8. Small Shaper
9. 24-inch to 60-inch Planer
10. Key Seater
11. Slotter
12. Drill Press (Radical)
13. Small Horizontal Boring Mill
14. Screw Machine
15. Milling Machine (Plane)
16. Universal Milling Machine
17. Ingersoll Mill
18. 30-inch to 42-inch Lathe
19. 56-inch to 72-inch Vertical Boring Mill

EXHIBIT III. APPRENTICE MANUAL

MACHINE SHOP COURSE—DIVISION 6

14-INCH TO 24-INCH LATHE

USE OF THE APPRENTICE MANUAL

THE work you are to learn on the lathe is divided into three sections: First, straight turning and facing; second, taper turning; third, boring and thread cutting.

This manual contains blueprints of three practical jobs, one for each of these three sections of work on the lathe. Following each blueprint is a list of questions. These will call your attention to the important things to be learned in that section of lathe work and will also be used to test your knowledge of the work.

Your work on the lathe will lead up to these three jobs and will enable you to answer the questions. Of course, the work will not be simply on the three jobs in the manual; the foreman will give you many different kinds of work to do that will make you a better lathe hand. Much of this work will teach you how to answer the questions and do the jobs in the manual.

After you are able to answer the questions in Section I and make valve stems according to the blueprint in that section, you will be advanced to taper turning, Section II. When you can answer the questions and do the jobs of Section II, you will be advanced to boring and thread cutting. After you have passed the work in Section III you will be ready to go to a new machine.

*You will be advanced and given new work in accordance with the ability you show in the job you are on.*

Refer to the questions in connection with the different kinds of work you do and learn to answer as many questions as possible from your own observation. You can get additional information by referring to books and magazines on machine shop practice, by talking to experienced machinists, and by getting the help of your foreman.

When you have mastered the questions and think you are able to do the job test, you should apply to the foreman and apprentice supervisor for advancement to the next section of the course. Your advancement will depend upon your ability to pass a test of the questions and job. The test will not include anything except the material contained in the manual.

## SECTION I

## 14-INCH TO 24-INCH LATHE

At the proper time, the foreman will supply the material from which you will construct the part shown in the blue-print. The job must be completed so that it will pass inspection and it must be done within a time acceptable from a production standpoint.

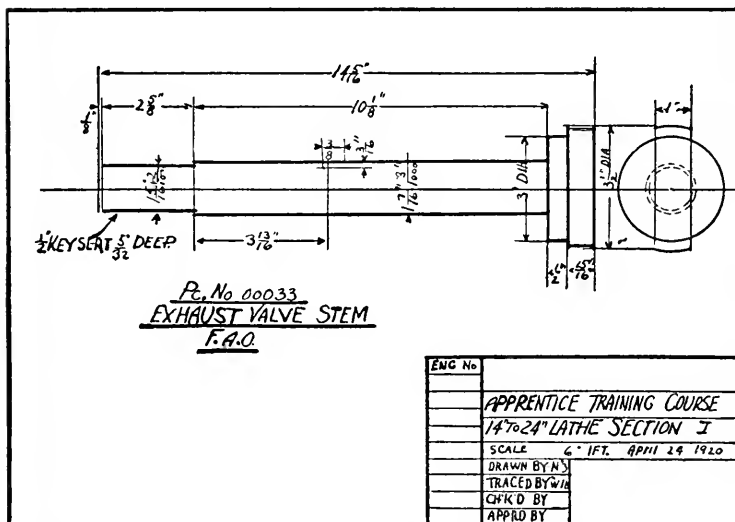


Figure 78: Blueprint furnished apprentice for trial work on exhaust valve stem for 14-inch to 24-inch lathe

1. Locate and explain the use of each of the following parts of an engine lathe:

*Bed.* Frame of lathe; large casting supporting moving parts of lathe.

*Feed rack.* Toothed bar on front of bed; engaged by worm on feed rod for purpose of moving carriage.

*Lead screw.* Long screw on front of bed; moves carriage when cutting threads.

*Feed rod.* Rod on front of bed; gives motion to feed mechanism of apron for cross and longitudinal feeds.

*Gears for lead screw and feed rod.* Gears at left end of lathe; transmit motion from pulleys to lead screw and feed rod.

*Ways.* Angular projections at top of bed along which the carriage moves.

*Headstock.* Part mounted on left end of bed; contains parts for supporting and rotating work.

*Live center.* Center set in the headstock spindle; enters end of work and rotates it.

*Face plate.* Plate attached to headstock spindle; drives dog and has work clamped to it.

*Spindle.* Bar passing through bearings of headstock; carries and rotates center, face plate, and so forth.

*Gears.* Gears mounted on headstock; transmit drive for spindle, feed rod and lead screw.

*Pulleys.* Cone pulley runs on spindle; transmits drive at different speeds to the gears.

*Tailstock.* Part mounted on right end of bed; supports one end of work.

*Dead center.* Center set in the tailstock spindle; point on which work turns.

*Tailstock spindle.* Bar passing through bearings of tailstock; carries dead center.

*Carriage.* Movable part resting on ways; supports tool rests and moves along ways.

*Cross-slide.* Movable part resting on carriage; supports tool rests and moves across carriage.

*Compound rest.* Base and sliding piece mounted on cross-slide; supports tool and feeds it at any required angle.

*Hand feeds.* Handles on carriage parts; move cross-slide and compound rest by hand.

*Tool post.* Steel post on tool rest, with slot to clamp tool at any angle.

*Apron.* Part attached to carriage and moving along front of bed; carries mechanism for feeds and screw cutting.

*Hand feeds.* Handle on apron; moves carriage along bed by hand.

*Automatic feeds.* Train of gears in apron; move carriage and cross-slide automatically.

2. What is the swing of a lathe?

Largest diameter that clears the ways.

3. What is the angle formed by the point of the lathe centers?

Sixty degrees.

4. Why is the spindle of a lathe made hollow?

(1) Facilitates removal of live center

(2) Permits bar stock to pass through spindle

(3) Does not spring as readily as a solid bar

5. (a) What is the dog used for?

Drives work by engaging with face plate

- (b) Name two kinds of dogs.

(1) Screw dog, Driving dog

(2) Single tail, Double tail

(3) Straight tail, Bent tail

(4) Plain, Clamp

- (c) When is a double tail used?

(1) Heavy duty

(2) Stop chattering

(3) Work out of balance

6. Name three kinds of chucks and describe each one.
- (1) Independent—Jaws move separately
  - (2) Universal—Jaws move together
  - (3) Combination—Jaws may be moved separately or together
7. (a) What is a mandrel or arbor?
- Shaft or bar to hold bored work while it is being turned.
- (b) Name two kinds and describe them.
- Plain—Slightly tapered round bar with centered ends.
- Self-tightening — Similar to plain mandrel but having a small roller in a groove along the bar.
- Expansion—Tapered bar fits into an outside split part which is expanded by driving in the bar.
8. (a) What is a tool holder?
- Bar to hold a small steel cutting tool, the whole serving in place of a solid tool.
- (b) What advantage has the solid tool over the tool holder?
- Conducts heat from cutting edge faster and is more rigid.
9. What is a steady rest used for?
- To support slender shaft and prevent its springing away from the cutting tool.
10. (a) When is a follower rest used?
- When turning slender work that is



liable to spring away from the tool.

(b) Where is it attached?

To the carriage.

11. Give a method of accurately testing the centers of a lathe for straight centers.

(1) Taking trial cuts

(2) Test bar and indicator

12. What part of the lathe is adjusted to set the centers in line?

Tailstock.

13. Give two or more methods of trueing the live center.

(1) Compound rest

(2) Tool set at proper angle

(3) Grinding attachment

14. What happens to the work if the live and the dead centers are not in line?

Larger at one end than at the other; tapers.

15. How should the height of the headstock center compare with that of the tailstock?

Same, or head .002 higher to allow for wear of headstock.

16. Give two or more methods of centering the stock for turning in a lathe.

(1) Centering machine

(2) Center square

(3) Hermaphrodite dividers

(4) Set stock in chuck and steady rest and drill center from tailstock

17. What are the results if chips or dirt are present in the center holes while the work is being finished upon centers?

Work is eccentric or out of true; will taper or be irregular.

18. What is a counter-balance used for?

To obtain balance on eccentric work.

19. Name six common lathe tools and explain the use of each one.

(1) Side tool—Facing or turning side of collar

(2) Roughing tool—Rough turning

(3) Finishing tool—Finish turning

(4) Parting (cutting off) tool—Cutting off shaft, squaring corner under collar

(5) Thread tool—Cutting threads

(6) Boring tool—Turning inside of work

(7) Diamond point tool—Roughing cuts and finishing cuts

(8) Round nose tool—Rounding out fillets, and so forth

20. Why are lubricants used on cutting tools?

To keep them cool; to give a smooth finish to work.

21. What lubricants may be used:

(a) On cast iron? Water; soda-water.

(b) On steel? Lardoil; turpentine; oil compound.

(c) On brass? None.

22. What are the advantages of a tool that has been oil-stoned?

Roughness left by emery wheel is

removed; tools gives a smooth cut.

23. When using a side tool to square up bar stock, what is the relation of the cutting edge to the height of the centers?

At the exact height of the center point.

24. What is apt to happen if round work is revolved too slowly when being filed in a lathe?

Work becomes out of round; is flattened.

25. What causes the scratches on the surface of work finished with a file?

(1) File becomes clogged

(2) Too much pressure on file

26. When filing cast iron in a lathe, what happens to the cast iron if you run the work too fast?

Case hardens the iron or glazes it.

27. What is the effect on the file of too fast a work speed when filing in a lathe?

The file teeth are overheated, softened and turned over dulling the file; the file is burned.

28. Name two kinds of files commonly used to finish work on a lathe.

(1) Mill files

(2) Second cut files

29. What is used for polishing turned work in a lathe?

(1) Emery cloth

(2) Oil paste

30. (a) What is meant by cutting speed?

The rate at which the tool passes

over the work. (Feet per minute on surface of work.)

(b) What factors govern the cutting speed?

Material; Tool; Feed; Size of work; Shape of work.

31. (a) What is meant by feed?

The advance of a tool along the work. (The advance in one revolution of the work.)

(b) What factors govern the feed?

Material; Tool; Speed; Size of work; Shape of work.

32. How do you change the speed of the lathe?

(1) By changing the belt

(2) Gear lever

(3) Motor control

33. What are back gears for?

To reduce speed of lathe and increase the power or pull.

34. Explain the back gear action—when the back gears are “in” and when they are “out.”

The face is keyed to the spindle and may be engaged with the cone and disengaged at will. When engaged, the lathe spindle revolves at the same rate as the cone. This is back gear “out.”

The cone is disengaged from the face gear and the cone gear (small gear at back of cone pulley) is meshed with the large back gear. The large back gear and small back gear rotate together and the small back gear meshes with the face gear which is keyed to the spindle. This is back gear “in.”

35. Explain the action of the feed mechanism for both the carriage and cross-slide.

Carriage—Feed rod operated by belt and gears from cone pulleys, turns a worm inside the apron. The worm operates a train of gears, the last working in the rack of the lathe bed and causing the carriage to move along the bed.

Cross-slide—Feed rod also causes slide to traverse carriage by action of a train of bevel and plain gears.

36. Compare the speeds and feeds in turning steel, cast iron and brass.

Cast iron twice as fast as steel.

Brass three times as fast as cast iron.

Feeds about same for all.

37. What is meant by cutting angles, clearance angles, and rake as applied to cutting tools?

The cutting angle is the angle made by the sides of the cutting tool which come together to form the cutting or edges. The clearances are the angles of the surfaces below or beside the cutting edges to prevent the rubbing of these surfaces upon the work surfaces being tooled and are known as front clearance, side clearance, and so forth. Rake is the inclination or slant to the top face of the tool.

38. (a) What is the result of too little side clearance?

Rough cut.

(b) Of too much side clearance?

Tool grips or gouges.

39. How do turning tools for brass differ from those for steel and iron?

Top cutting face flat and horizontal; no rake and ample clearance for brass.

40. How should a tool ground for turning steel differ from that for cast iron?

More clearance for steel.

41. Do you sharpen a side tool by grinding on the top side or front?

Front.

42. What measuring tools are used for accurate work on a lathe?

Micrometer vernier gage; vernier caliper.

43. What causes the mark where the lathe was stopped for an hour or so when turning a long or large piece of work?

The change in temperature and spring of tool.

44. Give allowance for finish cut on shaft two inches in diameter by ten inches long.

One sixty-fourth inch or less.

## SECTION II

### 14-INCH TO 24-INCH LATHE

At the proper time, the foreman will supply the material from which you will construct the part shown in the blueprint. The job must be completed so that it will pass inspection and it must be done within a time acceptable from a production standpoint.

1. Give three methods of turning tapers.

- (1) Taper attachment
- (2) Compound rest
- (3) Offset centers
- (4) Special taper lathe

2. Describe the taper attachment.

A device consisting of a guide bar attached at the back of the lathe bed and connecting pieces between the bar and

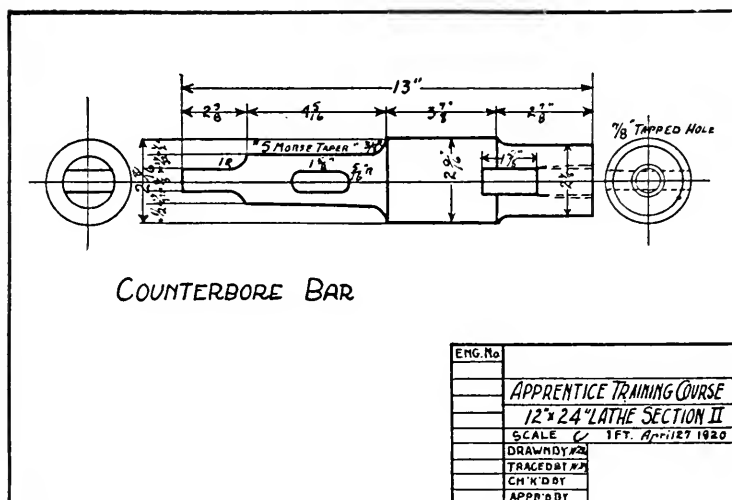


Figure 79: Blueprint furnished to apprentice for trial work on counterbore bar for 14-inch to 24-inch lathe

the cross-slide. The guide bar of the attachment is set by its indicator at the proper angle. Its connection to the cross-slide causes the latter to feed in or out as the tool progresses, thus turning the taper of the required angle.

3. (a) What is the effect of lost motion in the use of the taper attachment?

Tool will cut irregularly for short distance at start of taper.

(b) How can it be overcome?

Overcome by starting cut some distance beyond the end of the taper.

4. What sort of tapers are cut with the compound rest?  
Short abrupt tapers.

5. On turning a taper explain the methods of setting the compound rest to the required angle.

Compound rest is at  $0^\circ$  to cut straight across; angle must

be set from this starting point. If angle is given from axis of work, use complement of that angle.

6. When cutting tapers how high should the cutting point be in relation to the axis of the work?

Same height.

7. What is meant by taper per foot?

The change in diameter in one foot.

8. If the large diameter of a taper is 3 inches and the small 2 inches, the distance between these two diameters being 4 inches, what is the taper per foot?

Three inches per foot.

9. Name two most commonly used standard tapers.

(1) Morse

(2) Brown and Sharpe

(3) Jarno

10. How is the fit of a taper in a collar tested?

Make a few chalk marks the full length of the taper; place the collar over the taper and turn it around. Contact of collar on taper is indicated by the way the chalk is rubbed. It should be rubbed off evenly.

11. How are tapers turned on work held in a lathe chuck or on a face plate?

By the use of the compound tool slide or by use of the taper attachment.

12. How is a tapered hole bored in a casting so large that it must be fastened to the bed of the lathe?

By a traveling head boring bar set eccentrically at one end.

13. How should a shaft or spindle be mounted in the lathe to conveniently machine an accurate tapered hole in one of its ends?

(1) Mount back end of shaft to run true in a lathe chuck



when the front end of shaft is held upon the dead center in the usual manner. (Shaft should run dead true thus held).

(2) Set up and adjust a lathe "center rest" so that its jaws just touch the shaft and support it as nearly as possible to its right-hand end.

(3) Remove tailstock to back end of lathe and proceed to drill, bore, and ream a tapered hole.

## SECTION III

## 14-INCH TO 24-INCH LATHE

At the proper time, the foreman will supply the material from which you will construct the part shown in the blueprint. The job must be completed so that it will pass inspection and it must be done within a time acceptable from a production standpoint.

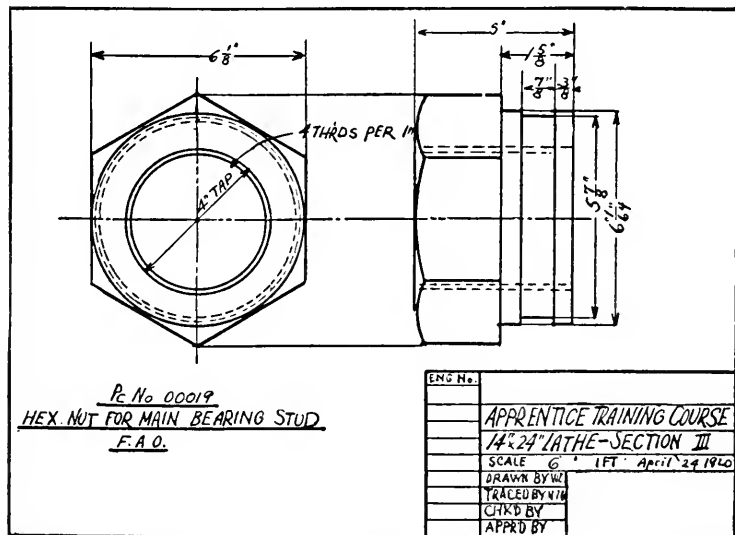
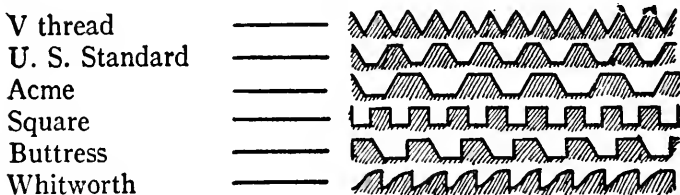


Figure 8o: Blueprint furnished apprentice for trial work on hexagonal nut for main bearing stud, 14-inch to 24-inch lathe

1. Name six kinds of threads each having a different shape. Describe or show by drawing the form of each one.



2. Explain the method of setting a threading tool.

Tool is clamped firmly with its center line at right angles to the axis of the work. This can be done by means of a center gage. Tool should have its top face same height as center of work.

3. Give three methods of returning the threading tool to the start of the thread.

(1) Reverse rotation of lathe spindle (and all other parts)

(2) Reverse rotation of lead screw

(3) Disengage lead screw and run carriage back by hand

4. What parts of the lathe are involved in reversing the direction of the lead screw, while the spindle continues in one direction?

Spindle gear, tumbler gears, gear on stud.

5. In thread cutting why must the tool be withdrawn from the cut when returning it to the starting point.

Prevent marring of thread or breaking of tool point.

6. Explain how to catch the thread without reversing the lathe?

Get same point on thread dial.

7. Why are thread tools set on center and ground without rake?

To get the same angle as the tool.

8. Name two methods of sizing threads.

- (1) Thread micrometer
- (2) Gages
- (3) Three-wire system

9. Explain how you figure the ratio to be got by change gears in cutting threads.

Divide the number of threads per inch on the lead screw by the number of threads per inch that are to be cut. This gives the ratio of the change gears needed.

10. What are right-hand and left-hand threads?

Right-hand—turns clockwise into nut.

Left-hand—turns counter clockwise into nut.

11. How does the method for chasing a left-hand thread differ from that for a right-hand?

Gears are reversed and cut is started at left end of thread. The cut goes from headstock toward tailstock.

12. What is the pitch of a thread?

Distance from center of one thread to center of next.

13. What is the lead of a thread?

Distance a screw turning in a nut will advance in one revolution.

14. What is the relation between pitch and lead of a single thread? A double thread? A triple thread?

(1) 1 : 1

(2) 1 : 2

(3) 1 : 3

15. Define the term "boring" as used in lathe work.

The process of enlarging a drilled or cored hole by the use of a boring tool or inside turning tool.

16. What is meant by the button method of locating a hole for boring and how is it used?

A round disk is set where the hole is to be and the outside of the disk made to run true, proving by a test indicator. The button is then removed and the hole bored true.

17. What causes a boring tool to cut the back end of the hole large when several cuts are taken and the feed is each time in the forward direction?

The spring of the tool at the end of the cut.

18. How are internal threads chased on an engine lathe?

By using a boring tool having a point ground to the correct thread angle.

19. What is a tap?

Hardened steel tool for cutting threads in a hole.

20. Explain how you would determine the allowance to leave in a hole to be tapped.

Refer to chart for size of hole and kind of thread to be turned.

21. What allowance should be left for reaming?  
.002 to .003.

22. How is a drill held when drilling in a lathe?

Drill holder holds drill; center of holder is placed on tail center of lathe and the handle rests on the carriage. Drill is fed by advancing the tailstock spindle.

23. Explain the use of a thread stop gage attachment.

Gage attached to feed rod and supported on bed is set at point where thread is to be stopped; when the carriage reaches the gage it causes the feed mechanism to disengage, thus ending the cut. (Rarely used).

24. Explain the use of a thread depth gage attachment.

Stop gage attached to tool is set by means of screw to allow a cut of the desired depth. It is used when a number of threads of accurate depth are to be turned. (Rarely used).

### 3. LABOR TURNOVER

#### A. SELECTED BIBLIOGRAPHY AND BRIEFS ON TABULATION OF LABOR TURNOVER

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- \*Abstracted in Appendix on page noted by "See Page—"

## B. BRIEFS OF VARIOUS ARTICLES DEALING WITH THE COMPUTATION OF LABOR TURNOVER

PERIODICAL OR BOOK      *U. S. Bureau of Labor Statistics, Monthly Review*, June, 1918.

AUTHOR      Recommended by Committee of National Employment Managers Conference at Rochester, N. Y., 1918.

DEFINITION      "The percentage of labor turnover for any period considered is the ratio of the total number of separations during this period to the average number of employees on the force report during that period. The force report gives the number of men actually working each day as shown by attendance records."

FORMULA       $S = \text{Total number of separations for period considered.}$

$M = \text{Average of number actually working each day throughout the period.}$

$T = \text{Percentage of labor turnover.}$

$$\text{Formula 1. } \frac{S}{M} = T$$

DISCUSSION      Recommend that the percentage of turnover be computed weekly and that these reports be reduced to a yearly basis.

In case the number permanently employed by the plant decreases as a matter of deliberate policy, this fact, along with the reasons for the reduction, should be explicitly stated.

PERIODICAL OR BOOK      *The Quarterly of the American Statistical Association*, June, 1919.

ARTICLE "How to Figure Labor Turnover."

AUTHOR Frederick I. Crum.

DEFINITION *"The total number of men hired and paid off who are actually replaced represents the complete turnover."*

"If there is an excess of men hired over those paid off they are to be accounted to increase in force, while if there is an excess of men paid off, they represent a decrease in force," E. Goldberg. Richard Gregg correctly states the statistical problem to be "the measurement of the movement of industrial workers in and out of their employment, and the analysis of its causes and results."

FORMULA

T=Percentage of labor turnover.

R=Replacements.

$P_1 . . . P_{31}$ =Number of men on payrolls.

N=Number of payrolls used in getting average.

$$\text{Formula 2. } T = \frac{R}{\frac{P_1 + P_2 + P_3 + . . . + P_{31}}{N}}$$

To reduce monthly to yearly basis count odd weeks in the month in which they have the most days. If according to this method of counting there are four weeks in the month, multiply by 13, if five weeks in the month, multiply by 10.4 to get yearly turnover.

DISCUSSION

The use of the older method of dividing the number of replacements by the average payroll to secure the percentage of labor



turnover for a given period is preferable to dividing the entire number of separations by the average number of employees on the force report for the period.

(a) On a decreasing payroll separations are not a true measure of labor turnover. Example: When a ship is nearly completed, economy dictates that men be laid off by the shipyard. No turnover has taken place here, however.

(b) Payroll figures are better to use than attendance or force report figures for the base, for

(1) Payroll figures always contain the whole labor force and force report figures fluctuate from 100% down to 50% or lower, and their fluctuation has no real relation to labor turnover and gives an untrue percentage. Example: Twenty percent of the men may be absent on a hot day or 30% may be out with influenza.

(2) Payroll figures are a truer basis when men leave without notice and are not reported for several days. They are dropped from the force report but should be included in the denominator of the turnover figure which represents them.

(3) It is easier to obtain payroll figures as they come from one source, while attendance figures come from many.

(4) Labor fluctuation and absenteeism will probably be studied in the near

future and the payroll figures worked out for labor turnover will serve excellently as a denominator in computing these percentages. This will save considerable work.

(c) Absenteeism is a separate factor affected by different causes and subject to different remedies and should not be included in any computation of labor turnover as it is if the force report is used.

If the payroll figures are used, however, they should be cleared twice a month of all dead wood. This clearing answers the greatest objection that can be argued against their use.

Labor turnover figured for the principal departments of a plant should include transfers but these should not be included in the plant figures. Example: People move from state to state in the United States, but we do not count this in immigration or emigration figures for the United States.

Profit sharing, bonuses, group insurance, pensions, restaurants, promotion, training employees for the job all help in solving the labor turnover problem.

However, an efficient Employment Manager will do the most to help and he needs good labor turnover figures to demonstrate his worth. He must have a basis for these that can be defended by sound common sense and logic.

PERIODICAL  
OR BOOK

*Bulletin of the Taylor Societies*, August  
19, 1919.

ARTICLE

"Methods of Computing Labor Turnover."

AUTHOR Paul H. Douglas.

DEFINITION "Labor Turnover is simply the number of men hired by a given business unit to take the places of the men who have left. Turnover does not begin until replacement occurs."

FORMULAS Formula suggested by author:

M=Average number on payroll. Secure this by averaging payroll at the first and end of the month or, better yet, averaging it each week.

R=Number of replacements.

T=Labor turnover percentage.

$$\text{Formula 3. } T = \frac{R}{M}$$

Formula used by Bureau of Labor Statistics:

S=Total separations for period.

M=Average number of employees on force report for the period.

T=Labor turnover percentage.

$$\text{Formula 4. } T = \frac{S}{M}$$

DISCUSSION Regarding Formula (4), above, recommended and used by the United States Bureau of Labor Statistics:

(a) The use of separations rather than replacements gives erroneous results, for though roughly all right when force is increasing, it gives erroneous results when force is decreasing. Example: Force decreased in one month from 1,000 to 900

men. That means 100 separations. No replacements during this period. Obviously there has been no turnover, but by the Bureau of Labor Statistics formula there was a turnover of 100 men.

(b) The use of the average attendance as the denominator confuses absenteeism with turnover. Investigation shows many plants have 6 to 15% of their men absent daily. Why disregard these men?

The proper method is the use of formula (3) above. Here with an increasing force you use the number of separations actually replaced and with a decreasing force use the number of men actually hired. The latter figure fairly can be considered the number of replacements here, for though no man replaced any particular workman, he must nevertheless have replaced someone.

Hence to compute the labor turnover for any period, find the total number of replacements for the period and divide this by the average number on the payroll.

Care should be taken not to include in the labor turnover figures old employees newly hired for their old positions.

It will be desirable to compile statistics on turnover for departments and trades as well as for the plant as a whole.

PERIODICAL  
OR BOOK

*Turnover of Factory Labor.*

REFERENCE

Chapter I.

AUTHOR

Sumner H. Slichter.

DEFINITION

"Turnover may be defined as all termina-

nations of employment in the force regardless of cause. Labor turnover is usually expressed in the form of a percentage of the number of terminations of employment to the average force on the payroll during a given period."

**FORMULA**

S=All separations or terminations.

M=Average force on payroll for period.

T=Labor turnover.

$$\text{Formula 5. } T = \frac{S}{M}$$

**DISCUSSION**

The view that terminations for which no new hirings are needed should not be counted as turnover is disagreed with, for most reductions in working force are temporary and the later cost of breaking in a new man is a real cost which is a direct result of having laid the worker off. All terminations of employment involve cost to the public and the employee, a loss of social income to the public and wages to the workman, if the usual period while looking for a job follows. Also social costs due to increased accident frequency on the new job and the demoralization and discouragement incident to the termination often follow, particularly as reductions in force have a way of occurring simultaneously in all establishments in a given industry. Furthermore, causes for termination are not independent but cumulative and interdependent, and knowledge of industrial conditions, of which temporary jobs are a part, may help in understanding the transient habits of many workmen.

The risk of change to which the force is exposed varies with (a) number of men employed (b) length of time they are employed. The average is the proper base because it measures this risk of change.

Transfers are not customarily included in turnover figures, but reports should show transfers between departments and permanent transfers in the same department classified according to principal reasons. Do not include in the turnover statistics men hired who failed to report.

The report must also show the number of men who have not changed as well as terminations, also number of permanent and number of temporary jobs for the period.

It must clearly define "discharge" and "lay-off" especially considering (a) men hired who fail to report; (b) men quitting without notice; (c) difference between temporary and permanent lay-offs.

PERIODICAL OR BOOK	<i>Industrial Management</i> , August, 1919.
ARTICLE	"Computing Labor Turnover."
AUTHOR	Daniel Bloomfield.
DEFINITIONS	"Labor turnover is the condition in industry represented by the engagement, loss, and replacement of workers. It represents the leakage or waste of man power and is a fair index of the efficiency of management methods and conditions of employment."
FORMULA	T=Turnover L=Loss M=Transfer

U=Unavoidable Loss

A=Average number employed for period computed. Use daily average here wherever possible. Some managers average first and last day of the month, however.

$$\text{Formula 6. } \frac{L-(M+U)}{A}=T$$

$$\text{Formula 7. } \frac{L-U}{A}=T$$

#### DISCUSSION

In the use of formula (6) above, when increasing the force subtract the increase from the number hired to secure L above. When decreasing the force add the number represented by the decrease to the number hired during the period to secure L above.

This formula allows for the elimination of the unavoidable elements from the final figures. Transfers are deducted from the plant figures because they really do not represent a true loss of man power. Use formula (7) in figuring turnover for a single department. Transfers from one department to another being really exits from one and entrance to the other are not deducted.

#### PERIODICAL OR BOOK

*Bulletin 202, Bureau of Labor Statistics.*

#### ARTICLE

Report submitted to Employment Managers Association of Boston, Mass.

#### AUTHOR

E. H. Fish.

#### DEFINITION

"Labor turnover is the percentage of employees which it is necessary to replace over a period of one year's time."

## FORMULAS

$T$  = Labor turnover per year.

$L$  = Losses, or number of men replaced per year.

$M = \frac{1}{2}$  (number of men working at beginning of period plus number working at end of period.)

$$\text{Formula 8. } T = \frac{L}{M}$$

From  $L$  should be subtracted deaths, marriages, and inter-departmental transfers in finding the turnover for the entire plant. In getting departmental figures transfers may be included.

## DISCUSSION

Average number at beginning of each month or week on payroll is not accurate but is probably as accurate as is necessary, the labor turnover figures being merely an indication of conditions rather than an exact measure. It would be more accurate, however, to compute the turnover on the average number working reduced to a full work-week's time. Example: If average employee works but 50 hours a week and the shop time is 60, only  $\frac{5}{6}$  as many men are effectively engaged as the payroll shows.

PERIODICAL  
OR BOOK

*The Journal of Political Economy*, February, 1919.

## ARTICLE

"The Nature and Computation of Labor Turnover."

## AUTHOR

Boris Emmet.

## DEFINITION

"Labor turnover is caused by separations which necessitate the employment of more



than one person per position per year. By position per year is meant an extent of working time equivalent to the hours worked by one steadily employed person per year. The excess of the number employed over the number of available positions represents a correct measurement of the extent of labor turnover."

FORMULA  
(MADE UP  
FROM STATE-  
MENT OF HOW  
to COMPUTE)

H=Actual number working during period.

$$P = \frac{\begin{cases} \text{Total annual labor-hours actually} \\ \text{worked, each occupation or plant.} \end{cases}}{\begin{cases} \text{Total possible annual hours of one} \\ \text{full-time worker.} \end{cases}}$$

T=Percentage—excess of workers actually employed over number of full-time workers.

$$\text{Formula 9. } \frac{H-P}{P} = T.$$

F=Mean size of force.

S=Gross separation.

H=Number hired.

T=Percentage of labor turnover.

$$\text{Formula 10. With force expanding } T = \frac{S}{F}$$

$$\text{Formula 11. With force decreasing } T = \frac{H}{F}$$

## DISCUSSION

The formula of the Bureau of Labor Statistics is unsatisfactory, for it seems that turnover does not begin till replacements are made, hence separations alone are not a satisfactory figure.

Labor turnover is made up of three fac-

tors (a) Working force or number of jobs; (b) Separations; (c) Replacements.

(a) above, can be secured in three ways:

(1) By comparing the total annual working hours of the whole force with the full-time labor-hours of one person. This is the most scientific way but is impractical, for most factories have no labor-hour records.

(2) The average daily payroll. This method is simple and familiar, but the payroll is seldom kept daily and nearly always has absentees and no recorded separations on it.

(3) The force report.

There is often a difference of 10% to 12% between these two latter figures and using payroll gives inflated working force and so diminishes the turnover. The force report, therefore, is a more accurate measurement. A daily attendance record of course must be kept to secure this.

Separations include all those permanently detached for service.

Replacements are separations for which a substitute is needed and hired. With an increasing force the number of replacements equals the number of separations if all separations are replaced. With a diminishing force, the number of replacements equals the number hired and not the number of separations. See Formulas 10 and 11 above.

Labor turnover should be compiled by

shift, department, occupation, and length of service.

PERIODICAL OR BOOK      *Industrial Management*, February, 1918.

ARTICLE      "Labor Maintenance and Its Indices."

AUTHOR      Winthrop Talbot, M.D.

DEFINITION      "Labor maintenance is keeping a required force of workers steadily at work."

FORMULA      I=Index of replacement.  
TC=Total changes.  
RC=Required changes.

$$\text{Formula 12. } I = \frac{TC}{RC}$$

DISCUSSION      There are three types of growth in industry (1) Annual, (2) Periodic, (3) Specific. These are natural and necessary. The canning industry is an example of (2).

Laying off the force here is not wasteful but distinctly economical. What we are really concerned with are *unnecessary changes* in personnel through faulty employing methods, poor foremanship, and so forth. Labor turnover denotes changes in personnel without reference to the cause, necessary or unnecessary.

Labor turnover is usually found by dividing exits by the number at work. The greatest value to this sort of figure is for comparison and (1) the many methods used here make figures incomparable (2) so many variables enter into these figures that they are practically meaningless. For example, the stability of the base varies with expan-

sion, seasonal fluctuation, special production, foremanship, rate of pay, and so forth.

What we really need to know is:

- (a) Requisite fluctuation in personnel
- (b) Number of changes needed to make this fluctuation
- (c) Total number of changes actually taking place

The index of maintenance given in the formula above will hold good for any payroll period, be comparable with figures from other shops without disclosing actual payrolls, and show the changes not required by the exigencies of the business.

PERIODICAL OR BOOK	<i>Industrial Management</i> , February, 1919.
ARTICLE	"Principles of Labor Turnover."
AUTHOR	H. Mulhauser.
FORMULA	<p>L=Total completed cycles or terminations.</p> <p>A=Average number on payroll.</p> <p>T=Percentage of turnover.</p> <p>Formula 13. <math>T = \frac{L}{A}</math></p>
DISCUSSION	<p>Students of labor turnover have figured on the basis of</p> <ul style="list-style-type: none"> <li>(a) Terminations</li> <li>(b) Replacements</li> <li>(c) Payroll figures</li> <li>(d) Attendance figures</li> </ul>

There are three basic factors in any study of labor turnover:

(a) Unit of turnover—individual employee.

(b) Cycle of turnover—begins with hiring, ends with termination of employment.

(c) Percentage of turnover—ratio of number of completed cycles of turnover (b) to average number on payroll.

Terminations rather than replacements should be used for

(a) Replacement theory discarded years ago when labor accounting just developed.

(b) Replacement theory rests on production loss or labor loss until replacement is made or replacements as a pivotal point in labor loss. This is not true in practice for

(1) Often new machines make replacements unnecessary.

(2) Terminations of unnecessary jobs are not losses but distinct gains.

(c) There are no replacements when force is decreasing and separations without turnover are illogical.

(d) In an increasing force there must be terminations or there are no replacements.

(e) If the place of an employee leaving is filled at once, there are no losses in production.

(f) If replacements are used as the numerator of the turnover fraction, the formula is unbalanced as they are also in the denominator.

Payroll figures rather than attendance

figures should be used, for most firms have interpreted the "standard method of computing turnover" to require the use of the payroll figures and since the most valuable use of turnover figures is for the purpose of comparison, standardization is here desirable.

One way to get cleared payroll figures is to take the number of workers assigned to the force report. This overcomes any objection to using payroll figures based on the dead wood these figures usually contain.

PERIODICAL  
OR BOOK

*Industrial Management*, September, 1918.

ARTICLE

"Computing Labor Turnover."

AUTHOR

R. P. Dolan.

DEFINITION

"Labor turnover is the number of employees made necessary to 'hire or fire' in order to maintain a working force."

FORMULA  
(MADE UP  
FROM DATA  
GIVEN)

$T = \text{Percentage of labor turnover.}$

$$H = \begin{cases} \text{Normal force—number hired.} \\ \text{Increasing force—number of separations.} \\ \text{Decreasing force—number hired.} \end{cases}$$

$A = \text{Number employed as shown by labor census.}$

$$\text{Formula 14. } T = \frac{H}{A}$$

PERIODICAL  
OR BOOK

*Industrial Management*, September, 1918.

ARTICLE

"Computing Labor Turnover."

AUTHOR

D. R. Kennedy.

DEFINITION "Labor turnover is the number of men necessary to hire to maintain the average working force."

FORMULA  $T = \text{Turnover}$

$$L = \begin{cases} \text{Normal force—number of men leaving.} \\ \text{Decreasing force—number of men necessary to hire to maintain the average working force.} \\ \text{Increasing force—number of men hired, less increase in force.} \end{cases}$$

$U = \text{Unavoidable losses.}$

$A = \text{Average working force. Add months payroll and take average of payroll at first and last of the month.}$

$$\text{Formula 15. } \frac{L-U}{A} = T$$

PERIODICAL OR BOOK *Industrial Management*, September, 1918

ARTICLE "Computing Labor Turnover."

AUTHOR H. H. Magowan.

DEFINITION "Labor turnover is the relation between the average daily number of employees on the payroll and the total number of exits for the month."

FORMULA  $B = \text{Average number on payroll (averaged by days)}$

$L = \text{Exits for the month.}$

$T = \text{Turnover.}$

$$\text{Formula 16. } \frac{L}{B} = T$$

DISCUSSION The deaths, the draftees, and so forth, are

legitimately counted with the turnover figures as they all cost the organization money.

PERIODICAL OR BOOK      *Special Bulletin, United States Emergency Fleet Corporation.*

ARTICLE      "Labor Loss."

AUTHOR      D. L. Hoopingarner.

DEFINITION      "Labor turnover is measured by the number of persons hired during a given period to replace others who have left the service for any reason during the same period. \* \* \* Loss in the standard work force is the loss from failure to have had the proper number of workers on the payroll or loss from failure to replace promptly men leaving necessary jobs."

FORMULAS      (a) Labor Turnover.

M=Mean of number of workers on the payroll daily for the period or mean of the number on the first and last days of the period.

A=Actual number of workers hired any period.

B=Number of increase of workers on payroll for the given period.

C=Number of necessary jobs left vacant and not refilled for the given period.

D=Number of jobs left vacant and not refilled during previous periods and refilled during given period.

T=Percentage of labor turnover.

$$\text{Formula 17. } T = \frac{(A - B - C) + D}{M}$$



Multiply by 12 to get monthly figures to a yearly basis.

(b) Variation from Standard Work Force.

*Daily*

S=Number of men short plus number surplus.

F=Standard work force.

P=Percentage of shortage from S. W. F.

$$\text{Formula 18. } \frac{S}{F} = P$$

*Monthly*

L=Mean of men short or surplus for each day of month.

M=Mean of number of men required on each day of the month.

P=Percentage of variation in S. W. F.

$$\text{Formula 19. } \frac{L}{M} = P$$

(c) Absenteeism and Tardiness

L=Hours lost by absenteeism.

M=Mean of number on daily payrolls for month times number of hours possible for workers to work for period.

A=Percentage of absenteeism.

$$\text{Formula 20. } \frac{L}{M} = A$$

Use same formula as (20) above for Percentage of Tardiness, changing L to read "Hours Lost by Tardiness."

DISCUSSION

Labor loss is due to

- (a) Labor turnover
- (b) Poor attendance
- (c) Failure to maintain a standard working force (failure to keep men on payroll up to standard)
- (d) Lack of steady application to work
- (e) Needless shifting of workers between departments
- (f) Fatigue
- (g) Lack of harmonious working spirit

Labor turnover is only one factor, often (b) and (c) are overlooked. They entail direct loss in output, idle machines, and so forth, however, for they prevent working up to the maximum.

Labor turnover will not serve as a true index of labor conditions whether replacements or separations are used as a basis.

(a) It does not take into account what payroll actually is and what it actually should be.

(b) Nor difference in cost due to workers merely leaving their jobs and the cost of their leaving and the cost of the job being refilled.

(c) Nor factors due to poor attendance on payroll.

Thus men leaving from unnecessary jobs are cared for by being credited to the account of Loss in Standard Work Force.

A man leaving because his job is done and he is no longer needed is not a loss because he was a part of a normal investment and he has served his purpose.

Separation from payroll of workers on necessary jobs and not replaced shows in

shortage from the Standard Work Force until they are replaced; not labor turnover cost, however.

Labor turnover involves costs such as hiring and training new men even though the job is filled the same day.

Absenteeism and tardiness bring two factors into loss of production

(a) Loss of production on part of men actually late or absent.

(b) Loss of production by other workmen due to demoralizing effect upon working forces.

Labor turnover may be low, but labor conditions are very unsatisfactory because of poor attendance from absenteeism or tardiness or failure to replace men who have left unnecessary jobs or vice versa.

Keep careful record, therefore, (a) labor turnover; (b) loss in Standard Work Force; (c) poor attendance—absenteeism and tardiness.

Labor turnover record should be kept monthly and may be kept daily. Make these reports by departments, and trades also, if there is more than one trade in a given department. Separate the Avoidable from the Unavoidable.

Example: Avoidable — incompetency, irregularity.

Inavoidable—death, sickness.

#### SUMMARY

Those who have been working upon methods for the computation of labor turnover may be divided into two

heads. One group, such as Mr. Hoopingarner and Dr. Talbot, are dissatisfied with the results obtained with the old turnover concept as a means of analyzing labor conditions. A second group are fairly well satisfied with the concept, or at least do not question it seriously, and are concerned directly with the methods of measurement to be employed.

Mr. Hoopingarner of the first group points out that labor turnover alone is unsatisfactory as a true index of labor conditions, for it does not take into account what the payroll actually is or should be, nor the difference in cost due to workers merely leaving their jobs and to workers leaving and later having their job refilled, nor the factors which are due to poor attendance. He suggests that the factors of the variation from the standard or required work force, of absenteeism and of tardiness must be considered in addition to the factor of labor turnover if any true measurement of the labor situation is to be obtained.

Dr. Talbot challenges the whole concept of the labor turnover index as being unnecessary and suggests that what we really want to know is the requisite fluctuation in personnel, the number of changes needed to make this fluctuation and the total number of changes which have actually taken place, and decides that the essential index is one obtained by comparing total changes with required changes.

The discussion of the writers composing the second group above—those primarily concerned with the methods of measurement—centers around five factors

- (a) Replacements
- (b) Hirings
- (c) Separations
- (d) Payroll force
- (e) Force report

The two main points at issue with most of this group seem to be whether replacements or separations should be used as the numerator of the labor turnover fraction and whether the payroll figures or force report should be used as the

denominator of this fraction. The arguments in favor of replacements as against separations run as follows:

(1) On an increasing payroll separations are not a true measure of labor turnover, for separations at this time are a direct saving to the firm as a general rule.

(2) On a decreasing payroll with 100 separations and no hirings during a certain period, there has been no turnover, but if separations are used the result will be a turnover of 100.

Those who favor separations as against replacements argue that

(1) Most separations are temporary and the breaking in of the new men represents a real cost to the employer.

(2) All separations mean a cost to the man and the public—the loss of income to the man and the loss of social income to the public—if the usual period of job hunting follows.

(3) The causes for separations are not independent, but interdependent, and therefore all separations should show in the turnover figures if true answers to the industrial problems are to be sought.

The writers who argue in favor of the use of payroll figures rather than force report figures for the denominator of the turnover fraction say that

(1) Payroll figures always contain the whole labor force and force report figures fluctuate from 100 to 50% or lower. This fluctuation has no real relation to labor turnover. Hence the percentage computed with such a fluctuating base is unreliable.

(2) Men often leave without notice and are not reported for several days and payroll figures in this case are correct basis because these men should be included in the denominator of the turnover figure of the period which rep-

resents them. They are, however, dropped on the force report figures.

(3) Payroll figures are easier to obtain as they come from one source, while attendance or force report figures come from a large number of sources.

(4) Labor fluctuation, absenteeism, and tardiness will probably be studied in the near future. Payroll figures are the logical base to use in computing indices for these figures and the use of the payroll figures as the base for labor turnover will save considerable clerical labor.

(5) The force report confuses absenteeism with labor turnover. This is a separate factor which is not confused with labor turnover if the payroll figures are used.

(6) The mean of the number of men on the payroll is a better measure of the risk of change than is the mean of the number of men on the force report.

(a) The risk of change varies with the number of men employed

(b) The length of time employed

(7) The payroll figures are simple and familiar to all. Force report figures are not so generally used nor so familiar.

Those who have suggested the use of the force report figures instead of the payroll figures have pointed out that the payroll figures usually contain large quantities of dead wood—men who have quit but never called for their pay, men who have left without notice and are not paid at the time the turnover is being computed, and so forth, and that the force report figures are cleared of all these names.

For purposes of comparison a table follows giving the percentage of labor turnover obtained by the use of the various formulas suggested in this article, the facts being assumed to be as follows:

Men on payroll July 1.....	910
Men on payroll July 31 .....	920
Mean number men on June payrolls.....	1,000

Mean number men on July payrolls....	900
Decrease .....	100
Number hired during July .....	150
Number separations during July .....	250
Number replacements .....	150
Mean number men force report figure for July .....	850
Unavoidable separations July .....	10
Transfers July .....	20

TABLE 24  
PERCENTAGE OF LABOR TURNOVER OBTAINED  
BY USE OF VARIOUS FORMULAS

Formula Number	Percentage of Turnover	
	Monthly	Reduced to Yearly Basis
1	29.4	352.8
2	16.7	173.7*
3	16.7	200.4
5	27.8	333.6
6	24.4	292.8
8†	16.4	196.8
11	17.6	211.2
13	27.8	333.6
14	16.7	200.4
15	15.3	183.6
16	27.8	333.6
17	16.7	200.4

\* See page 540 for method used to reduce monthly figures to a yearly basis with their formula.

† L assumed to mean replacements. Formula ambiguous.

#### 4. TYPICAL REPORTS AND SURVEYS

##### EXTRACTS FROM A REPORT MADE TO AN ASSOCIATION OF MANUFACTURERS

THIS report deals with the relations between the workers and managements in the mills of the ———— Manufacturers' Association. These relations are sometimes between the Association and one of the unions represented in the mills—generally, in such cases, the principle of collective bargaining is recognized both by the Association and the union concerned. Sometimes the relations are between an individual or a group of individuals in one mill and the manager of that mill. These relations differ in each mill according to the personality of the management. This relationship is generally thought of as beginning when the new employee starts on the job. Actually, it begins when the new employee first comes in contact with a knowledge of the mill. This knowledge is sometimes gained through a chance acquaintance or friend and sometimes through the first contact with the person who offers him a job, or to whom he applies for work.

The attitude of individual workers not only affects the relations between a group of workers in one mill and their management, but it also affects the relations between affiliated groups in various mills of the Association and the Association as a whole.

We have, therefore, in Part I of this report, placed considerable emphasis on "the relations between the individual managements and their individual employees." Under this heading we have stated the facts as we discovered them in our investigation and recommended to you such actions as we believe you should take to improve these relationships.

The relation between the Association and the affiliated groups of employees is covered in Part II of this report. An analysis of earnings by groups and by occupations will be found in Part III of the report, and in Part IV we will submit our recommendations concerning the keeping of employment records and the work of

- (a) An employment record clerk
- (b) An employment manager
- (c) A labor manager
- (d) A collective agreement regarding labor relations, to be worked out jointly by representatives of the unions concerned and representatives of your Association.



## PART III

STUDY OF EMPLOYEES' EARNINGS IN TEN MILLS  
OF THE ASSOCIATION

The payroll earnings of the various employees in the mills of the Association were secured for the purpose of making a comparative study of actual earnings in the various mills and among the various occupational groups found in those mills.

Payroll data for the months of May, June, and July, 1919, were furnished by ten mills. For the purposes of this report it has seemed best not to identify the tabulations for each mill by name, since at this time we are trying to emphasize the need for a careful analysis of the payroll figures of all the mills on the part of the Association. For this reason each mill is referred to by letter. The executives of each mill will receive from us under separate cover a supplementary statement regarding the payroll earnings for their mill. By means of this supplementary report each executive will be able to identify the figures for his mill in this general report.

It was impossible to secure any of the figures from two of the twelve mills in the Association, and from another mill we were able to secure the figures for only four occupations. There is no reason to believe that the missing figures from these mills would have changed any of the conclusions drawn from the figures presented in this study.

In securing the payroll earnings care was taken to note each employee's occupational classification, and the employees were then grouped according to the occupational classifications furnished by the mills.

From the payroll statistics that were made available to us by the various mills, we were unable to subdivide the groups in those occupations where it is evident subdivisions should be made for the purpose of careful analysis. For example, in our comparison of earnings of footers we have been unable to separate those working on a 33-gage machine from those working on other gages, since in most instances the records furnished us gave no indication as to what gages the individuals worked on during the period covered by the earnings reported. Neither was it possible to subdivide the workers in an occupation according to the materials worked on during the period covered.

It was found in the majority of the mills the employees were paid bi-weekly during the period studied, and all earnings have

TABLE 25

## AVERAGE BI-WEEKLY EARNINGS AND DIFFERENCES IN EARNING POWER FOR VARIOUS OCCUPATIONAL GROUPS

MILL A				MILL B			MILL C		
Occupation	Number of Employees	Average Bi-weekly Earnings	Differences in Earning Power	Number of Employees	Average Bi-weekly Earnings	Differences in Earning Power	Number of Employees	Average Bi-weekly Earnings	Differences in Earning Power
Footer	8	\$114.69	\$ 7.00	7	\$58.87	\$12.44	18	\$77.73	\$15.65
Legger	19	101.21	29.20	4	67.90	18.59	47	63.53	11.44
Boarder	8	60.23	1.11	5	44.55	7.13	10	47.00	2.00
Seamer	7	44.39	4.73	4	46.71	1.30	23	27.46	3.10
Mender	6	35.28	2.36	9	32.42	4.52	17	30.05	8.19
Topper	16	37.27	2.04	11	31.67	5.89	31	30.00	4.79
Looper	13	29.88	5.17	15	27.79	5.70	22	26.87	7.25
Pairer	5	30.49	0.86	4	25.78	1.90	7	22.07	2.21
Winder	4	29.96	3.40	1	25.28	...	24	26.16	3.19

MILL D				MILL E			MILL F		
Occupation	Number of Employees	Average Bi-weekly Earnings	Differences in Earning Power	Number of Employees	Average Bi-weekly Earnings	Differences in Earning Power	Number of Employees	Average Bi-weekly Earnings	Differences in Earning Power
Footer	8	\$108.99	\$11.12	33	\$84.30	\$12.13	26	\$69.14	\$25.26
Legger	18	110.12	30.90	54	70.17	24.71	51	60.48	21.22
Boarder	6	45.17	7.95	36	46.67	3.48	*		
Seamer	8	46.18	6.43	44	29.15	5.50	30	25.56	5.79
Mender	5	38.30	3.57	30	38.77	2.96	28	23.76	7.17
Topper	17	37.93	3.07	61	29.51	2.78	57	29.32	2.41
Looper	9	35.82	2.53	45	31.78	4.33	28	27.52	6.61
Pairer	4	26.66	1.13	21	28.04	6.57	5	29.95	1.35
Winder	6	25.47	3.05	33	24.94	3.53	15	27.26	1.56

\* Figures for Boarders in Mill F not available.

TABLE 25 (Continued)

## MILL G

## MILL H

## MILL I

Occupation	Number of Employees	Average Bi-weekly Earnings	Differences in Earning Power	Number of Employees	Average Bi-weekly Earnings	Differences in Earning Power	Number of Employees	Average Bi-weekly Earnings	Differences in Earning Power
Footer	24	\$ 74.19	\$14.27	5	\$96.21	\$16.29	5	\$120.07	\$15.10
Legger	48	78.43	19.08	18	72.96	16.83	22	93.99	11.40
Boarder	23	47.16	3.01	4	56.38	0.84	4	55.88	4.16
Seamer	28	29.33	9.19	5	44.99	6.78	8	37.31	2.95
Mender	14	25.80	1.95	3	38.23	3.55	6	22.69	8.11
Topper	49	26.25	4.32	10	32.44	3.65	8	37.74	4.76
Looper	25	26.46	4.79	7	31.59	5.14	7	34.15	6.63
Pairer	7	36.75	1.31	3	19.94	5.31	7	26.45	2.39
Winder	14	25.83	1.97	3	29.30	2.07	5	27.56	3.04

## MILL J

## ALL MILLS COMBINED

Occupation	Number of Employees	Average Bi-weekly Earnings	Differences in Earning Power	Number of Employees	Average Bi-weekly Earnings	Bi-weekly Earnings of Lowest Worker	Bi-weekly Earnings of Highest Worker
Footer	6	\$83.90	\$ 8.02	140	\$82.47	\$35.21	\$143.08
Legger	12	71.28	11.45	293	75.21	12.74	150.68
Boarder	5	46.21	1.46	101	48.42	26.55	61.55
Seamer				157	31.16	7.26	65.86
Mender				118	30.90	3.65	46.16
Topper				260	30.39	12.86	65.75
Looper				171	29.48	10.37	46.35
Pairer	4	19.48	2.25	67	27.34	11.98	54.87
Winder				105	26.14	18.68	34.58

been studied on a bi-weekly basis. In those mills where the employees were paid every week, six bi-weekly periods for each employee were secured by adding together the first two weeks in May as one pay period, the second two weeks were added together as the second pay period, and so forth. Each employee's earnings for the three months were thus divided into six bi-weekly payments.

Wherever we have calculated average bi-weekly earnings for the three-month period, we have adopted the rule of including only those employees who were on the payroll from the beginning of the three-month period to the end.

The study here reported includes only those occupational groups for which we had figures from all mills. Such groups as laborer, chauffeur, presser, boxer, stamper, labeler, shipper, and so forth, were reported by only a few of the mills and, even then, included but one or two individuals. For comparative purposes it is obvious that such groups must be omitted from this study. Foremen and foreladies are also excluded from this report.

No account was taken of lost time within the three-month period, because we are here interested in comparisons of actual earnings, irrespective of the complexity of factors involved. Such factors need to be taken into consideration at a later time if a more complete analysis of payroll records is to be made.

#### A. AVERAGE EARNINGS FOR VARIOUS OCCUPATIONAL GROUPS

Table 25 gives figures showing the average bi-weekly earnings for various occupational groups in each mill and for all mills combined. For each mill the figures are shown in three columns. The first column gives the number of employees in each occupation, the second column gives the average bi-weekly earnings of all the workers in each occupation, and the third column gives the *average differences in bi-weekly earnings* (earning power) between the individual workers within each occupation.

#### (1) COMPARISON OF MILLS

First, we will consider the average bi-weekly earnings which are shown in the second column for each mill.

The average bi-weekly earnings of the eight footers in Mill A were \$114.69. For Mill B the average bi-weekly earnings were \$58.87. Reading across the table we see that the average bi-weekly earnings for footers vary considerably from mill to mill. Mill I shows the highest average bi-weekly earnings (\$120.07); and Mill B the lowest (\$58.87). Footers as a group, taking all mills combined, have an average bi-weekly earning of \$82.47. It

is evident that there is a great difference in the average earnings of workers in an occupation in one mill as compared with the earnings of workers in the same occupation in another mill. The same sort of difference is evident for each occupation shown in Table 25, although the differences are not as great for some of the occupations. Winders, for example, show only a slight fluctuation in average earnings from mill to mill—the highest in Mill A having an average of \$29.96, and the lowest in Mill E having an average of \$24.94.

## (2) COMPARISON OF OCCUPATIONS

Differences in average earnings in dollars and cents between various occupational groups are also shown in Table 25. The average earnings for each occupation for all mills combined range from footers at the top (average earnings \$82.47) to winders at the bottom (average earnings \$26.14). It is important to note that the ranking of these occupations from highest to lowest is not uniform for all of the mills. For example, seamers in Mill E make considerably less than do menders in Mill E. The reverse is true in comparing the same two occupations in Mill F. A further illustration of this lack of uniformity may be noted in Mill G where pairers, who in all the mills combined average \$27.34 and therefore rank next to the lowest in earnings, are receiving \$36.75 and therefore rank fourth, which is higher than loopers, toppers, menders, and seamers. The significance of such a situation is evident if you think of pairers in Mill G seeking employment in Mill H, where pairers earn very much less than any other of the occupations shown.

## (3) TOPPERS, LOOPERS, AND SEAMERS

As was pointed out in Part I of this report, because of the strategic position that toppers hold in the industry, it seems expedient that recognition should be made of that position by an adjustment that would permit their receiving somewhat higher earnings than loopers and seamers. Because of the longer time required to become a proficient looper as compared with a seamer, the earning power of loopers should be somewhat higher than that of seamers. According to the average bi-weekly earnings, toppers stand fourth in the list of occupations in Mill I, while loopers rank sixth and seamers rank fifth; but in Mill G the toppers rank seventh, loopers sixth, and seamers fifth. At the same time, in Mill D we find that seamers rank third in the list above boarders, who are fourth, while menders rank fifth and above toppers and loopers, who rank sixth and seventh, respectively.

This lack of uniformity from mill to mill in the amount of earnings of workers in one occupation as compared with another is brought out in detail in Table 26. In this table under each mill the occupation receiving the highest average earnings is listed first, the occupation receiving the next highest average earnings is listed second, and so forth.

This study of the figures presented in Table 25 and the rankings presented in Table 26 from the standpoint of average bi-weekly earnings has shown:

I. There are great differences in the average earnings of workers in an occupation in one mill as compared with the earnings of workers in the same occupation in another mill.

II. There are great differences in average earnings between the various occupational groups, and the ranking of these occupations from highest to lowest is not uniform in all the mills.

#### B. AVERAGE DIFFERENCES IN EARNING POWER WITHIN EACH OCCUPATIONAL GROUP

##### (1) COMPARISON OF MILLS

The columns in Table 25 headed "Differences in Earning Power" show the average difference in individual earnings from the average earnings of that occupation. For example, among leggers in Mill A we find an average difference in earning power of \$29.20. In Mill C, the average difference in earning power among the 47 leggers is \$11.44. This means that the individual leggers differ more among themselves in earning power in Mill A than do the leggers in Mill C. In other words, if the figure shown for any occupational group in the column headed "Differences in Earning Power" is small, it means that the individuals all have about the same average earning power. If the figure is large, it means that the individuals in that occupational group differ greatly—some earn consistently much more than others in that group. To give a concrete example of the large differences in average earning power between the individual workers in each occupational group, we have included in the last two columns of Table 25 the average bi-weekly earnings of the lowest and highest worker in each occupation. Among all the footers in all the mills we find the worker having the lowest earning power receives \$35.21, on the average, bi-weekly, and the worker having the highest earning power receives on the average \$143.08, bi-weekly.

Differences in earning power in a given occupation are by no means constant from mill to mill. Leggers, for example, are much more alike in earning power in Mill C (represented by the amount

\$11.44) than the leggers in Mill A (represented by the much greater amount of \$29.20).

## (2) COMPARISON OF OCCUPATIONS

Not only is there this great variation in the same occupation from mill to mill, but we find just as great a variation when we compare two occupations. While there is a very large consistent difference in earning power among the individuals classed as footers, we find only small differences in earning power among pairers. The differences for pairers are less than \$2.39 in each of the mills except two, where, for some undetermined reason, the difference in earning power jumps to \$6.57 (Mill E) and \$5.31 (Mill H).

These differences in earning power among individuals in the same occupation may be due to any one of a number of causes; such as absenteeism on the part of some of the employees, working on different grades of material, differences in actual skill or production ability; differences in the efficiency of various machines; or differences in gage of machines. It is impossible without further study to determine the causes of these great differences in earning power. Until the causes are established, the significance of these differences in earning power cannot be understood. It would seem highly desirable that a special study be undertaken by your Association designed to discover the causes of such differences.

The study of the figures presented in Table 25 from the standpoint of differences in earning power has shown:

I. There are very great differences between individual workers in the same occupation with respect to earning power.

II. The differences in earning power for any given occupation are by no means constant from mill to mill.

III. Differences in earning power in some occupations are very much greater than in other occupations.

Only by such a study as we have recommended above will it be possible for your Association to discover the import of these differences.

## C. IRREGULARITY OF EARNINGS FROM BI-WEEKLY PERIOD TO BI-WEEKLY PERIOD

The irregularity of earnings from one pay day period to another for various occupations in the different mills is brought out on a dollars-and-cents basis in Table 26. This table brings out the uncertainty of earnings that confronts the workers in the various

occupations in these mills. The uncertainty of earnings for the footers in Mill A is \$9.21; for the footers in all mills combined the uncertainty is \$7.46. This means that the workers in the footer group (all mills combined) have an average variation in earnings of \$7.46 above, and \$7.46 below, their average bi-weekly earnings. Such an uncertainty of earnings is obviously undesirable, for in the long run workers are apt to become dissatisfied and terminate their employment because of the irritation they feel at not knowing within a reasonably small limit what their earnings will be from period to period. At first thought there is apparently a less uncertainty in such an occupation as pairer or winder. It is well to remember, however, that although the variation is only \$2 or \$3 for these groups, yet these \$2 or \$3 may be a very serious matter to those workers in view of their smaller bi-weekly earnings.

To bring out the extent of this uncertainty more clearly, we have counted up the number of workers in each occupation who individually have an average variation in earnings from period to period greater than the average variation for all mills combined. We have converted these numbers into percentages and present them in Table 28. The meaning of the uncertainty of earnings for footers (all mills combined) becomes clearer by reference to

TABLE 26

## UNCERTAINTY OF EARNINGS FOR VARIOUS OCCUPATIONAL GROUPS

	MILL A		MILL B		MILL C		MILL D	
Occupation	Number of Employees	Uncertainty of Earnings	Number of Employees	Uncertainty of Earnings	Number of Employees	Uncertainty of Earnings	Number of Employees	Uncertainty of Earnings
Footer	8	\$9.21	7	\$12.44	18	\$7.29	8	\$10.27
Legger	19	7.20	4	9.46	47	6.66	18	8.21
Boarder	8	4.17	5	6.51	10	5.66	6	6.59
Seamer	7	5.25	4	6.62	23	3.84	8	5.87
Mender	6	3.61	9	6.34	17	2.87	5	4.63
Topper	16	4.22	11	6.86	31	3.09	17	3.72
Looper	13	3.02	15	6.70	22	2.17	9	4.24
Pairer	5	3.52	4	4.74	7	4.74	4	3.72
Winder	4	3.30	1	2.28	24	3.48	6	3.55



TABLE 26 (Continued)

MILL E

MILL F

MILL G

MILL H

Occupation	Number of Employees	Uncertainty of Earnings	Number of Employees	Uncertainty of Earnings	Number of Employees	Uncertainty of Earnings	Number of Employees	Uncertainty of Earnings
Footer	33	\$6.98	26	\$7.19	24	\$11.61	5	\$6.86
Legger	54	7.44	51	7.62	48	10.35	18	5.99
Boarder	36	5.43			23	4.88	4	4.24
Seamer	44	3.73	30	3.30		3.02	5	8.62
Mender	30	4.13	28	3.09	14	2.37	3	5.26
Topper	61	4.16	57	2.84	49	4.26	10	2.63
Looper	45	4.10	28	2.41	25	3.07	7	4.62
Pairer	21	2.38	5	3.31	7	2.63	3	2.44
Winder	33	2.53	15	2.33	14	2.34	2	1.73

MILL I

MILL J

ALL MILLS COMBINED

Occupation	Number of Employees	Uncertainty of Earnings	Number of Employees	Uncertainty of Earnings	Number of Employees	Uncertainty of Earnings
Footer	5	\$21.94	6	\$10.01	140	\$7.46
Legger	22	7.97	12	13.98	293	8.10
Boarder	4	6.01	5	4.59	101	5.28
Seamer	8	6.40			157	4.08
Mender	6	4.64			118	3.71
Topper	8	7.28			260	3.89
Looper	7	5.76			171	3.67
Pairer	7	2.83	4	2.60	67	3.09
Winder	5	3.83			105	2.82

TABLE 27  
RANKING OF OCCUPATIONS IN EACH MILL ACCORDING TO THE AVERAGE EARNINGS OF WORKERS IN  
THAT MILL

Rank by Average Earnings	MILL A	MILL B	MILL C	MILL D	MILL E	MILL F	MILL G	MILL H	MILL I	All Mills Combined
1	Footer	Legger	Footer	Legger	Footer	Footer	Legger	Footer	Footer	Footer
2	Legger	Footer	Legger	Footer	Legger	Legger	Footer	Legger	Legger	Legger
3	Boarder	Scamer	Boarder	Scamer	Boarder	Boarder	Boarder	Boarder	Boarder	Boarder
4	Scamer	Boarder	Mender	Boarder	Mender	Pairer	Pairer	Scamer	Topper	Scamer
5	Topper	Mender	Topper	Mender	Looper	Topper	Scamer	Mender	Scamer	Mender
6	Mender	Topper	Scamer	Topper	Topper	Looper	Looper	Topper	Looper	Topper
7	Pairer	Looper	Looper	Looper	Scamer	Winder	Topper	Looper	Winder	Looper
8	Winder	Pairer	Winder	Pairer	Pairer	Scamer	Winder	Winder	Pairer	Pairer
9	Looper	Winder	Pairer	Winder	Winder	Mender	Mender	Pairer	Mender	Winder

NOTE.—Mill J omitted because figures were furnished for only four of the above occupations.

this table. For all mills combined we find that 57% (last column of Table 28) of all footers have an average variation of earnings

TABLE 28

PERCENTAGE OF EMPLOYEES IN EACH OCCUPATIONAL GROUP  
HAVING A GREATER UNCERTAINTY OF EARNINGS THAN  
THE AVERAGE FOR ALL MILLS COMBINED

MILL A		B	C	D	E	F	G	H	I	J	All Mills Combined
Footer	75%	85%	44%	87%	39%	46%	66%	40%	100%	83%	57%
Legger	31	75	15	50	35	31	69	22	36	83	39
Boarder	12	80	50	17	30	—	22	0	75	40	32
Seamer	57	100	22	50	25	30	14	80	87	—	33
Mender	67	89	18	20	33	30	14	66	66	—	36
Topper	38	91	23	29	36	17	43	10	100	—	34
Looper	31	80	9	33	47	18	28	57	100	—	38
Pairer	40	100	85	50	9	60	43	33	30	50	40
Winder	50	0	58	33	33	20	21	0	40	—	28

actually greater than \$7.46 above, or \$7.46 below, their average earnings. A comparison of the percentages for each mill for the footers brings out the interesting fact that the uncertainty of earnings is much more serious in Mills A, B, D, I, and J than in the other mills. Carrying the comparison between mills further, we note that in some of the mills the uncertainty of earnings for all the occupations is much greater than in the other mills. Mill B, for example, in every occupation except one, has a very high percentage of workers with variation of earnings actually greater than the average for the rest of the mills. Mill I, likewise, has a very high percentage for most of the occupational groups. This means that the workers in Mills B and I have on the average a much greater uncertainty of earnings than do the workers in the other mills. Mills E and F have on the average a lower percentage of workers with a variation of earnings greater than the average for the rest of the mills. It is impossible to state without further study just what cause or causes are operative in producing the general uncertainty of earnings for practically all of the occupations in these mills. It would be desirable to adopt some method of determining what part of this uncertainty of earnings is due to

conditions within the control of the employees (such as absences and voluntary restriction of output), and what part is due to conditions that the company can remedy (such as lost production time due to breakdown in machinery, lack of raw materials, poor routing of material, frequent shifting of employees from one grade of material to another, frequent shifting of employees from one gage machine to another, and so on).

The figures presented in Tables 27 and 28 show:

I. There is great irregularity of earnings from pay period to pay period among all of the occupations and in all of the mills.

II. Some mills show a decidedly greater irregularity of earnings for all of the occupations than do other mills.

III. Although the variation in earnings for such groups of workers as winders and pairers seems much smaller than for other occupational groups, it may be a serious matter to these employees in view of their smaller bi-weekly earnings.

The seriousness of this uncertainty of bi-weekly earnings is perhaps more evident if you assume an individual case. If employee Jones is an average footer in one of the mills, he will earn about \$60 in any one period, theoretically. Actually, he may earn \$40 in one period, \$48 in the next, \$80 in the next, and then around \$65 in the next three periods. Meanwhile employee Smith, likewise an average footer in the same mill, earning about \$60 as an average, may actually receive \$96 in one period, \$90 in the next, and then drop for the next period or two as low as \$28.

If employees Jones and Smith have any desire to control their expenses according to their probable income, such fluctuations in earnings from one pay period to another must lead to resentment. In so far as it is within the power of your Association to minimize such fluctuations, it is your obligation to do so.

#### SUMMARY

This study of the payroll data for the three-month period ending July, 1919, has brought to light conditions with respect to earnings that need the attention of your Association.

The significant points developed by this study of earnings, and already discussed and presented in the preceding sections of Part III, are brought together and presented here in the nature of a summary:

I. There are great differences in the average earnings of workers in an occupation in one mill as compared with the earnings of workers in the same occupation in another mill.

II. There are great differences in average earnings between the various occupational groups, and the ranking of these occupations from highest to lowest is not the same in one mill as in another.

III. There are large differences between individual workers in the same occupation with respect to earning power.

IV. The differences in earning power for any given occupation are not constant from mill to mill.

V. There is irregularity of earnings from pay period to pay period among all the occupations and in all the mills.

VI. Some mills show a greater irregularity of earnings for all the occupations than do others.

VII. Although the variation in earnings for such groups of workers as winders and pairers seems much smaller than for other occupational groups, it may be a very serious matter to those employees in view of their smaller bi-weekly earnings.

These significant facts show the fallacy of any attempt, either on the part of the Association or on the part of the representatives of the unions, to make adjustments in wage rates without intensive study that will be equitable or give satisfaction to the people working in these occupations.

The remedy for such irregularities as have been disclosed by this study of earnings does not lie in the wholesale increase of rate schedules, but in a sincere effort to determine the cause of the irregularities, and, then, to remove the cause or to make proper wage allowance in cases where conditions prevent any other equitable adjustment.

# A SURVEY MADE FOR A MANUFACTURING COMPANY

## PART I

### THE NEED FOR COORDINATING THE INDIVIDUAL'S OPPORTUNITIES, CAPACITIES, AND DESIRES

THE ——— Company has recognized in its relation with the people in its employ that it has definite obligations. It has recognized that one of these obligations is the development of the individual. While much has been done that is of value in the development of individuals by the Company, there has been a failure to secure a well-rounded development because of the lack of coordination in this work.

The failure to secure properly coordinated development of the individual is bad, because there is danger in the overdevelopment or underdevelopment of the individual's industrial life, just as there is danger in improper physical development. The various phases of an individual's industrial development should be coordinated. These may be grouped under three heads.

First of all, there is the individual's chance to develop. This constitutes his opportunity. Second, there is his ability to develop. This constitutes his capacity. Third, there is his wish to develop, or his desire. Each of these is co-equal in importance with the other two and should be developed uniformly.

#### THE CHANCE TO DEVELOP—OPPORTUNITIES

To furnish the opportunity to develop industrially involves more than the setting up of study courses. It means giving the individual a chance to go ahead in the work.

When a man is hired to work for the ——— Company, the Company should know what kind of work it is going to ask that man to do, how well that man's ability fits him for that work and whether or not it is the kind of work he would like to do. After a man begins to make good on the job, the Company should know what kind of work it can offer him next that will give him further opportunity.

The type of man that the ——— Company is looking for hopes that the job will give him an opportunity to make more of himself than he has ever made before. Moreover, the Company en-

courages him to believe that in working for the ——— Company he has an opportunity to develop and advance. The Company has no right to hold out this inducement to any individual unless it is willing to do its part. The first step is for the Company to find out what opportunities it has to offer.

All individuals are not alike. What may be a good opportunity for one may not offer any chance of development for another. Therefore, the difference in individuals makes the same job an opportunity for Jones but not for Smith. But unless you know the nature of the work required on that job and the qualifications needed to do the work you have no way of telling whether or not it offers an opportunity for either Jones or Smith.

The only way to discover the nature of the work required and the qualifications needed is by careful study and analysis. This analysis is not a task that can be done once and for all. Moreover, the nature and conditions of work in your Company are constantly changing and new opportunities are being and should be developed continually. The nature of these new opportunities should be known by all concerned.

Even though the foreman has a fairly definite knowledge of the jobs in his own department, unless this knowledge is passed on to someone else, it doesn't help either Jones or Smith, if they are in another department. In many cases the foreman himself has never analyzed the difference between the opportunities offered on one job and on another.

You need an adequate description of every job in the Company.

With such an analysis of your opportunities it will then be possible for you to determine what are the natural lines of promotion from one job to another or from one department to another. Also, this analysis of opportunities will make possible a study of wages, for each job, on the basis of the value of the service rendered. Such studies are needed now.

If the ——— Company is going to fulfil its whole duty in giving individuals a chance to develop, it must make somebody responsible for finding out what different kinds of chances it has to offer different types of individuals. Then this information must be recorded and kept up to date so that it may be used when an individual is hired and placed on a job or when he is transferred or promoted.

#### THE ABILITY TO DEVELOP—CAPACITIES

Capacities refer to the things people are to do whether with their hands or with their heads. No two individuals have exactly the same capacities.

Before the development of capacities can be undertaken, it is necessary to study the existing capacities among the people at work in order to determine where the lack of capacities exists and how this lack may be remedied. Otherwise, much time and effort will be wasted.

It is also accordingly important that the differences between individuals be kept constantly in mind. We have already pointed out that one kind of work might be an opportunity for Jones but not for Smith.

In the ——— Company you have recognized that there is a difference in individuals physically and you have established methods for determining what the difference is and how it affects the individual at his work. This same idea should be carried over into the study and development of the mental capacities of people in your employ.

A great deal can be learned about the individual by a carefully conducted interview. At present your method of interviewing people who want work does not go far enough. The man who does this interviewing for men does well in view of the conditions under which he must work. He should have a much more thorough knowledge of the qualifications needed in the work for which he is hiring people in order to justify a more careful study of the capacities of the people he hires.

If he had this more thorough knowledge of the job, he would then need more time and better methods for discovering the difference in the ability of one person applying for work as compared with another.

The procedure for interviewing women applicants is open to this latter criticism. The use of the application blank causes a certain amount of trouble. As a means for interviewing, this application form could be greatly improved to bring out the real capacities of the women who are seeking employment in your Company.

The repeating of the interview with the forelady and foreman of the department to which she is assigned results, of course, in a duplication of information, the giving of which may be irritating to some applicants. Where such repetition seems warranted, care should be taken to make the applicant as much at ease as possible.

It is particularly unfortunate in view of the excellent work done in many ways by the women in the Personnel Group that they are not authorized to do more in matters of complaints and wage increases and promotions.

No use has been made of carefully standardized tests for either men or women. There is always the danger that tests may be



misused, but if they are used with discretion they can be of considerable assistance in discovering individual capacities.

In the follow-up of people already at work, especially in connection with transfers and promotion, the knowledge of individual capacities is of great importance. Unless more scientific methods are adopted for determining individual capacities you run the risk constantly of judging a person capable of filling a higher position when he is not. There is probably nothing that the Company can do that is so unjust to the individual and so injurious to the organization as to promote a person to a job which he is entirely incapable of handling.

There is another danger in your present situation. It is that individuals with very real ability may be overlooked or even side-tracked as a result of neglect or personal prejudice on the part of their department heads. Such people are lost in the organization unless somebody is assigned to the work of studying the abilities of individuals and following them up.

Just as there is need that you make somebody responsible for finding out the different kinds of opportunities the Company has to offer, it is important that you make somebody responsible for studying and developing capacities. This information must also be recorded and kept up to date and used when an individual is hired or when he is transferred or promoted.

#### THE WISH TO DEVELOP—DESIRES

Desires mean more than the expressed wish of the individual. The expressed wish of the individual may not be the thing he wants most. It may be the thing that he thinks it will sound best to say. Frequently individuals are dissatisfied when they themselves are not able to tell just why.

You have done a good deal to develop desires throughout your organization. There has been much less done to study desires. The tendency has been to tell the people what they should want but to give less heed to what they do want. The procedure is often one of making decisions and laying down rules and then attempting to shape the desires of the people so that they will be favorable to the decision, rather than to study and develop the desires so that there will be an actual demand for the decision or rule before it is made.

Sometimes the effort is made to create or strengthen the most praiseworthy desires in individuals, but the manner in which the effort is made is offensive. Sometimes it injures the pride of the individual, or it may arouse his anger or create a suspicion. In

any case, there is the danger in such an effort that the method used may of itself defeat the very purpose for which it was done.

In spite of the difficulty of studying desires your Sales Organization has been successful in studying the desires of your customers and in developing their desire for your product.

In some noticeable cases you have carried the sales idea over into your relations with your employees. In many instances, however, you either order the employees to do things, or patronize them, when the effort to sell the idea would undoubtedly secure much better results. Instances of this nature will be referred to in Part IV of this report.

### COORDINATION

In the ——— Company's efforts to develop the individual there has been a failure to give equal emphasis to the study and development of each of these three essentials: opportunities, capacities, and desires.

It is especially this lack of coordinated effort which we wish to emphasize.

If the development is not uniform you will have an unbalanced condition. For instance, you may have capacities and desires properly developed, but have failed to develop opportunities. In this case the individual may have both the ability and the ambition to go ahead but no opportunity to do so. The natural result will be discouragement and he will either get out or suffer the deadening effect of remaining in such a situation.

If the opportunities and desires have been properly developed and capacities have not, the individual's ambition will have been aroused to a point where he may attempt something for which he is not qualified if the chance presents itself, or he may remain in his present position, but be resentful of the situation in which he finds himself.

A still third possibility is the hopeless condition which provides the chance to go ahead to the individual who might do so if he wishes but who, because he lacks the desire to develop, would rather stay where he is. Frequently the whole blame for such a state of mind is thrown upon the individual himself. Sometimes the responsibility must at least be shared by those in authority.

It is important to recognize that unless the Company makes a serious effort to do its part toward correcting this condition it not only fails in its social obligation to its own people, but it also permits a condition to exist which retards production and perpetuates inefficiency in the economic administration of the business.

## PART II

THE NEED FOR COORDINATING THE USE OF RECORDS AND  
DEPARTMENTAL FUNCTIONS

There has developed a feeling at the ——— Company that records and record files are dangerous things and that they should be kept out of the organization as far as possible.

This attitude toward records undoubtedly follows a period when record-making was grossly overdone. Actually, it is dangerous to attempt the management of 6,000 employees without adequate records. In your personnel work it is particularly noticeable that your records are not adequate. We wish, however, just now, to stress the need for coordinating the use of records, rather than the inadequacy of records.

There are some positions which you are desirous of filling at the present time, the requirements of which are not in record form. With the pressure of other work the people who are familiar with the requirements find little opportunity to pass the information along to other persons who might definitely assist in finding the right individual. It is, moreover, doubtful if those who are in a position to do so have analyzed the requirements of those positions in a way to reveal the particular qualifications needed.

There are undoubtedly large numbers of individuals in your organization who have the ability and the desire to advance in their work who are not known to department heads other than their own. These other department heads might have opportunities open and actually be seeking persons to fill them.

In the division of personnel work that appears on your organization chart as "Employment," you have more nearly approached the maintenance of a central record file than anywhere else. This record does not, however, carry a great deal of the important information that is collected by people responsible for promotion, clearance, education and hygiene.

Not only is this true, but unfortunately the people responsible for these other phases of personnel work seem to feel a hesitation in availing themselves of such information as has been accumulated in the record file of the employment division.

The development of the individual is vastly too important to be guided by impressions and by memory. Records are needed, if for no other purpose, in order to insure the use of accurate information which may serve both as a basis for study and for the development of the individual. A great deal of the information needed for this purpose is now being obtained and acted on, but not recorded. Thus, it is not available for others who should be

guided by it as much if not more than the people who collect it.

In order that the necessary information may be collected, recorded and made available, the functions of the different divisions in the personal group should be clearly defined and made known to all concerned.

Just as there is a lack of tie-up in the matter of records, so there is need for the coordination of departmental functions in your personnel organization. You now have seven distinct groups, working almost independently, each group reporting to the executive office, i. e. Employment, Employment Women, Promotion, Clearance, Education, Welfare, Hygiene. The divisions as established are in some cases purely arbitrary divisions. In many cases the functions overlap. In some instances this causes a duplication of work. In other cases it results in things being left undone because that function has not been and probably could not be definitely assigned to any one of the existing divisions in the personnel group.

In the matter of employment, that is, the hiring and placing of new employees, there is a division of responsibility between the employment of men and women. This is as it should be. But in matters of promotion, for example, the personnel group has assumed the function for men but actually does very little in the matter for women.

In carrying out the functions assigned to the promotion division the tendency is to work with and for those who are ready for promotion. But this division does little to discover the exact nature of the training and education which it would be profitable to give individuals who might with such training advance to more responsible positions.

By the reassignment of functions and by the establishment of a coordinating agency, this work can be assigned on a basis that will tie the loose ends together and make each individual unit a smooth-running part of the whole.

At present the Personnel Group simply serve as a "go between" for the foreman or department head and the man seeking employment. The foreman does the real interviewing and he isn't equipped to do it. He hasn't the records or the training or the time to do it and do it right. All men like to think they are good judges of men. It is no discredit to any man to admit he is not. Men frequently say, "Let me look at him and I'll tell you whether he's any good or not." This sort of judgment is fearfully dangerous and exceedingly costly. Such appraisals of ability are based on hunches and are as unreliable as they are unsound.

The skilled Employment man probably is no better judge of

men than the average foreman or department head. But the skilled Employment man doesn't rely on his personal judgment in hiring and placing men. He uses methods that protect him against being overinfluenced by personal prejudices and hasty opinions. Because it is his job he can devote his time to perfecting his methods and to measuring the success of his work in terms of results. The foreman hasn't time.

The foreman or department head should always have a chance to approve the selection made by the Employment Department. He has got to work with the man selected and should decide whether he thinks he can do so successfully or not. However, the responsibility for the selection should be placed on the Employment Department, along with the other functions that rightfully belong there.

### PART III

#### METHODS PROPOSED FOR BRINGING ABOUT THESE COORDINATIONS

In Part I we have indicated that the major difficulty in the Personnel Work of the ——— Company is lack of coordination in the development of the individual. In Part II we have discussed the need for coordination in the use of records and in departmental functions. In Part III, we shall indicate the methods by which these coordinations may be effected.

We have already shown that, unless constant watchfulness is exercised, overdevelopment in one particular is apt to result in underdevelopment in another. Also that perpetual care is necessary if well-balanced development is to result.

It is desirable first to consider how opportunities, capacities, and desires may be studied. With this knowledge available it is then safe to attempt the development of these three phases of personnel work.

#### OPPORTUNITIES

In your present situation the study of opportunities demands that special attention be paid first to Occupational Descriptions and to Wage Studies. We shall, therefore, in this report, indicate how these two methods may advantageously be used in your Company. It is desirable at the outset that you recognize that these methods are something more than a system. They are a part of a scientific procedure in the administration of Personnel Work. They furnish the Personnel Department with facts to replace the theories and superstitions that have everywhere caused

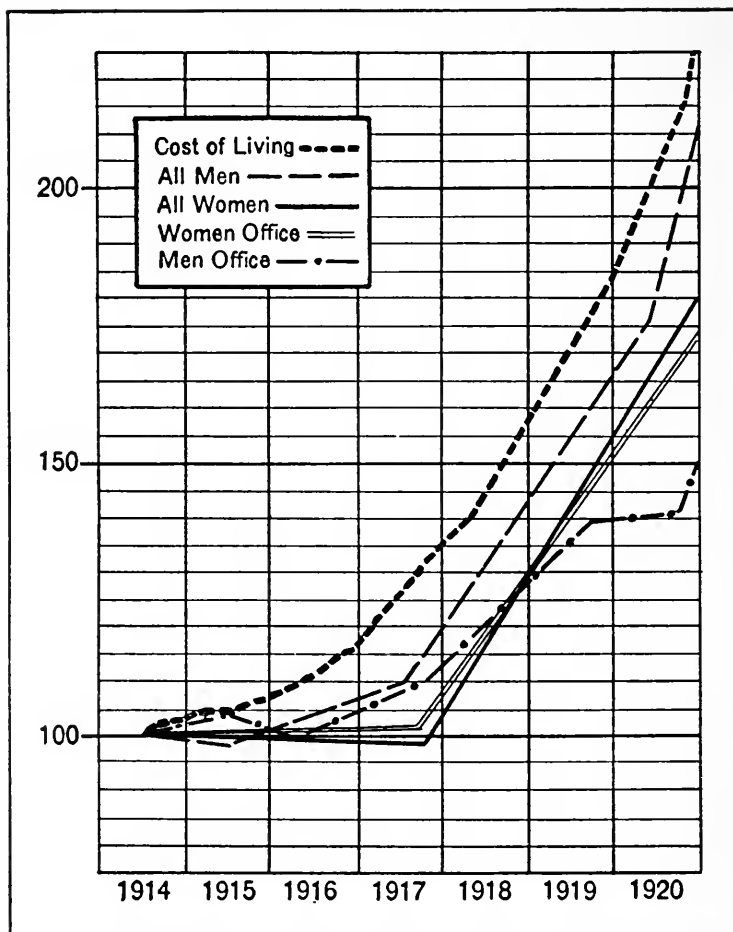


Figure 81: Wage study—Cost of living and wage increases, exclusive of profit sharing

so much waste and difficulty in handling people at work for years past.

\* \* \* \*

#### OCCUPATIONAL DESCRIPTIONS

Figure 81 is based on figures furnished by your own Payroll

Department and reveals the failure to have given the same percentage increases to men in office departments that were granted over a period of years to the other employees.

#### CAPACITIES

In the study of capacities, the Qualification Card, the Rating Scale and Tests all furnish a means for obtaining information that indicates the individual's ability.

\* \* \* \*

It is impossible to study and to develop effectively the opportunities, capacities, and desires of the employees without the complete coordination of departmental function in your personnel work. Instead of your present seven-fold organization (Employment, Employment Women, Promotion, Clearance, Education, Welfare, Hygiene) we recommend the following five-fold organizations:

1. Welfare
2. Employment and Personal Contact
3. Records and Research
4. Education and Training
5. Hygiene

The principal functions of each of these groups is as follows:

#### PERSONNEL DEPARTMENTAL FUNCTIONS

##### WELFARE

1. Recreation and Amusements
2. Social Activities
3. Building of Morale
4. Promotion of Citizenship
5. Development of Community Interest

##### EMPLOYMENT AND PERSONAL CONTACT

1. Development of Sources of Labor Supply
2. Determination of the Opportunities for Each Individual
3. Discovery of the Capacities of Each Worker
4. Discovery of the Desires of Each Individual
5. Insuring a Uniform Development of Each Individual

##### RECORDS AND RESEARCH

1. Keeping Records
2. Analyzing Records

3. Showing How the Results of This Apply to Every-Day Problems
4. Insuring That Records Are Accurate and Practical
5. Developing New and Better Methods

#### EDUCATION AND TRAINING

1. Arousing and Maintaining Interests
2. Trade and Technical Training
3. Developing Abilities
4. Preparing Men to Be Executives
5. General Education

#### HYGIENE

1. Physical Examinations
2. Medical, Surgical, and Dental Treatment
3. Sanitation and Dietetics
4. Accident-Prevention and Safety Work
5. Physical Development

Proper coordination of these five divisions of functions requires that the people responsible for these functions be brought together so that the work may be planned and executed in a functionalized and coordinated manner.

You are already familiar with the nature of the functions covered in the first two and the last two divisions.

The third division—Planning, Statistical and Research—deserves special mention in this report. The personnel work in your organization will not be complete when adequate methods have been once effectively set up. Nor will it be even when you have succeeded in bringing about a situation in which opportunities, capacities, and desires are uniform. As long as there are people at work there will be the chance and the need for the further development of their opportunities, capacities, and desires. This looking into the future we conceive to be the research function.

The ——— Company is not content with its present development of its product. New types of machines are in the process of development now. For your product you maintain a research department whose function it is to profit by the mistakes that have been made in the past, and to search out new methods and devices which will constitute improvement. If this is necessary in the product of the Company, how much more is it necessary in the personnel work of the organization? This idea is not at all foreign to the idea of coordination. Coordination means the planning together not only for the present but for the future.



There is nothing in the world that is so complex as human beings. There is nothing that is so necessary for the future of industry as to know its people better. We can think of nothing that fits so well into the spirit and the attitude of those responsible for the —— Company today, as the idea of establishing and maintaining within the personal group a division whose principal function shall be research with people at work.

## PART IV

### THE ATTITUDES OF THE PEOPLE AT WORK

The relations of people at work are influenced all the time by the attitudes of the other people in the organization. The attitude of a person indicates his point of view, what he thinks and what he wants to do. So in discussing attitudes we are talking about the tangible evidence of what people think.

If the chief executives in an organization assume a driving or fighting attitude toward their subordinates the subordinates assume the same attitude toward the people whose work they direct. This illustration cannot be applied to the —— Company, but the point we wish to make is that whatever the attitudes of the chief executives or of the rank and file, they affect the relationships of all the other people in the Company.

In the —— Company there are all sorts of groups which affect the attitudes and the relationships. In this part of our report we want to consider, first, the attitude of five major groups within the organization. These five major groups are:

1. The chief executives
2. That groups of executives who attend executive meetings
3. The Progress Club group
4. The Advisory Board
5. That large group of individuals which may be designated as the rank and file

From the standpoint of attitudes and their effect on relationships, no one of these five groups can be left out of consideration.

The effect of the attitudes of the people at work upon their relationships, creates problems which must constantly be faced and worked out by the chief executives themselves.

On the other hand, the nature of the work discussed in Parts I, II, and III makes it possible to delegate the responsibility for

administering it to experts who have been scientifically trained in the various functions involved. In thus assigning this phase of the work to specialists, the chief executives are not delegating to others functions that they should handle themselves, any more than is the case when mechanical or construction problems are delegated to mechanical or construction engineers.

In the matter of attitudes, however, whether it be the attitude of the Company toward such questions as the recognition of unions, or whether it be the attitude of the rank and file toward Company policies, the chief executives cannot delegate such questions of management to anyone else.

#### THE CHIEF EXECUTIVES

We have taken the chief executives as a group because it is here that the ideals, inspirations, and the directing influence originate in your organization. Too much emphasis cannot be placed on the unusualness of the attitudes of the directing agency of your Company. It is not unusual to find one or more members of the Board of Directors of a corporation with a fully developed sense of the social obligations of industry.

It is not so customary as it should be that those who have both the controlling interest and active management in a particular industry see fit to establish high social standards and then to endeavor to measure up to those standards in the conduct of their business.

The directing agency of the ——— Company has established for itself very high and progressive social standards and is constantly endeavoring to approach the standards set up.

The attitude of the directing agency toward industry and its place in the community is that the community is paramount and that it is the business of industry to build the community. The attitude toward the employees is one of real interest in them as people, and the relationship is with living human beings and not at all with labor that you buy for a price.

The attitude toward greater efficiency within the organization and toward anything that will benefit people at work at the ——— Company is that if it proves worth while, it may be passed on to other industries and other groups of people so that they may profit also. It is only by discovering and appreciating the significance of these attitudes of the directing agency that it is possible to understand the relationships within the organization.

We want to make the statement very clear that the failure to understand the point of view of the directing head of the Company is responsible for many of the Company's difficulties. It is

characteristic of human nature that things which cannot be understood frequently arouse suspicion. Outside of the Company this misunderstanding causes people to be perplexed and in some cases even to doubt the sincerity of purpose of some of the Company's policies. Inside the Company it results in a failure on the part of people in supervisory positions to restate the chief executive's position accurately or fully.

In attempting thus to interpret the chief executive's point of view the supervisory group lay aside that part of the point of view that they themselves cannot explain and present only that part of it which seems to them to be sound from a business standpoint.

Thus it comes about that within the organization the people who constitute the rank and file learn from one source that the purpose of some new company project is actually to benefit the community, while from other sources they are told that they should back the project because it will benefit the Company. Now these two points of view seem to be inconsistent to many of the people at work who look upon them as two distinct attitudes which are opposed one to the other.

Obviously the executives of the Company are fully justified in desiring to do everything possible to make the ——— Company a strong and powerful organization of itself. It is necessary if the ——— Company is to be a power for good in the community that it, of itself, shall be economically sound.

There is no inconsistency in wanting to make the Company prosper and in wanting to make it a power for good. The misunderstanding grows out of the belief that business is business and does not permit of any sentiment, and that doing good to the community is sentiment and that it does not mix with business as such.

The President of the Company believes that the opportunity for doing good is greater by working through the industry than through the more usual channels. He knows how he has attempted to do this in the past and how he is still attempting to do it. In order that others may know and understand just what he does hope to accomplish, we recommend that he, himself, prepare a statement for general distribution which shall tell in a simple manner the attitude of the Company toward industry and its place in the community.

The attitude of the chief executives in matters which may be considered less fundamental in their nature has in a few instances been unfortunate. We have in mind particularly such matters as the attitude toward individuals who have revealed a marked in-

capacity for a definite task assigned them. More especially in years past, there has apparently been a tendency to dismiss individuals from the organization because of a specific failure in a specific task. The reputation of the Company as a desirable place to work has been injured by this practice which has been deemed by many to be unjust to the individual.

Not only has injury been done outside the Company, but within the Company itself, for there has developed, as a result of the practice, the feeling of uncertainty on the job, that definitely affects the attitudes of all groups of people at work in the organization.

The remedy for this unfortunate situation lies first in the recognition on the part of the chief executives of the difference in individuals and in their capacities. People who have failed in one instance have in innumerable cases had most remarkable success in other situations. Sometimes the reason for failure cannot, with justice, be attributed to the individual who failed.

The responsibility for some failures rests squarely upon those in authority who, because of their lack of knowledge of the capacities of a man, have assigned that man to a task which it was humanly impossible for him to handle.

With the installation of the more scientific methods of determining the opportunities, capacities, and desires of individuals which we have discussed in Parts I and II, of this report, the Company will be in a better position to avoid mistakes in assignment. Also, when mistakes are made, they will have information at hand to guide them in finding other opportunities for the individual who failed, so that he may be given another chance with the Company which more nearly suits his ability, rather than being let out of the organization to seek his next opportunity elsewhere.

\* \* \* \*

#### THE EXECUTIVE MEETING GROUP

The coordination of work made possible by the weekly meetings of this group is of a very high order. When thus together, the heads of all departments can and do discuss all manner of problems of their own work. The relation of the work of Sales, Engineering, Manufacturing, Purchasing, and Finance to the work of the rest of the Company is constantly before this group.

To what extent they, as individuals, share the President's sense of community obligation for the industry is not apparent. It is evident that they enter heartily into the President's plans for fulfilling the industry's outside obligations, while working with him.

It does not appear in their contact with the Progress Club Group that they carry over to them the President's attitude toward industry and the community. Neither does it appear that they are expected to do so. Nevertheless, the failure of the Executive Meeting Group to form this connecting link between the chief executives and the larger supervisory force explains some of the misunderstandings that exist.

\* \* \* \*

#### THE PROGRESS CLUB GROUP

The Progress Club Group feel the pressure more immediately, perhaps, than any of the other groups, to get today's work done today. They have the responsibility of the immediate supervision of the people at work.

If the people higher up in the organization are interested in community and civic projects and have the time and energy to devote to these things, well and good. But they consider that their problem and their work is to get out production.

\* \* \* \*

#### THE ADVISORY BOARD GROUP

In most instances it is not possible to separate the attitudes of the members of the Employee's Advisory Board from the attitudes of the rank and file. The members of the Board are the representatives of the rank and file and they are exceedingly faithful in presenting to the management the attitudes of the people whom they represent.

There is this one distinction between the members of the Board and their fellow-workers. The members of the Board have an actual contact with the point of view and attitude of the management, which helps them both to understand and have confidence in the management in many cases of controversy. Thus, because of the responsibility they carry as members of the Board and because of their intimate contact with the management, they have developed an attitude of recognizing frankly both the good reason and the good intention of the Company's policies.

At the same time they appreciate very keenly the difficulty in some cases of convincing their associates of the Company's good judgment and good intentions.

There is, too, a most thorough respect revealed by the members toward the Company's officials with whom they come in contact in these meetings. This respect is certainly not born of fear, at all, but of the assurance that the intent of the officials of the Com-

pany is to give the people a square deal. This attitude of the members of the Advisory Board is as pronounced when the Company officials are not present as it is when they are.

\* \* \* \*

#### THE RANK AND FILE

It is always difficult for the executives to grasp readily the importance of the various attitudes of the people at work, who do not occupy positions of supervision or authority.

Those executives who have come to their positions without having had experience in the shops must arrive at a common basis of thinking with the average working man more or less by imagination and intuition. The executive who has risen from the ranks is also handicapped in reaching a common basis with the average working man because of the fact that *he*, the executive, *has risen* and unless he is careful he is apt to belittle things that seem important and difficult to the average man, because to him, with his unusual ability to overcome obstacles, these difficulties seem trivial. He was able to sweep them aside and to advance and he is apt to think that others should do so.

In both cases the problem is to put oneself into another person's position with a sympathetic understanding of the other person's point of view and limitations. In many ways those in authority at the ——— Company have succeeded in understanding and interpreting the attitudes of the rank and file. In the personal contact this is especially true. There is, however, a failure to appreciate the sensitiveness of attitude of the average individual in the written instructions and orders which are issued.

There is no need of being over-tender in the Company's approach to new employees. We are not advocating a pampering sort of thing, but there is no reason for issuing the curt command or veiled threat if another method would be less apt to cause resentment.

Let us cite just one illustration. In your booklet of "Information and Rules of Our Factory and Office Employees," on page 13, under the heading "Confidence in Employees," a very frank statement is made of the trust that is imposed upon the employees. After this statement has been finished, this one sentence is added. "*We mention this for the benefit of those who may be tempted to betray our trust.*" The frankness and courtesy of the previous statement is largely thrown away by this equally frank statement of distrust and suspicion of your employees.

We have referred to the instructions and orders simply to bring

out again the point we have made elsewhere in this report that a sales attitude is as valuable in selling an employee an idea as in selling a customer an article.

Anything which is said or written which may tend to antagonize, neglects the importance of the employee's attitude. Employees are always sensitive to curt commands when they are unnecessary and equally so to a patronizing attitude. Frequently a change of words is all that is required to avoid the creation of an unfavorable attitude.

The attitude of the employees toward their representatives in the Advisory Board group is important. If by any chance the impression is allowed to gain headway that the members of this group profit unduly because of their membership, an attitude of suspicion is bound to result.

In dealing with the attitudes of the rank and file, the essential thing is to recognize the importance of what the employees think is so, whether it is so or not. If they conclude that their representatives have reason to side with the Company against them, the representatives will become discredited.

Of course, if it were true that the representatives were failing in their responsibility to their associates, their associates would have cause for complaint. The important thing to recognize is that if the men *think* their representatives are failing them they believe they have cause for complaint just as sincerely as though it were true.

The Company can do a great deal to protect the representatives by guarding against any possibility that might be used as a basis for such an attitude of suspicion on the part of the rank and file.

In a previous discussion of desires, we have mentioned the need for giving careful attention to what the employees want and the possibility of creating a group demand for innovations or changes before they are put into effect.

If the change contemplated is obviously sound from the Company's standpoint and just from the standpoint of the individual, there will be no difficulty in an organization such as yours in accomplishing this.

With the demand established for the change, there will be no chance for misunderstanding or the building up of discontent when it is put into effect. Moreover, the very fact that the Company is actually willing to give consideration to the desires of the employees in so far as it is consistent for the Company to do so, will do much to build up a cooperative attitude throughout the plant.

There is a danger which is perhaps the outgrowth of the profit-sharing classification of individuals. It is directly tied up with

the matter of promotion. So far it has revealed itself in the questioning attitude of the employees as to whether the right man has been picked for promotion or whether an injustice has been done to someone else. The promotion means the change of status from Class D to Class C, in the profit-sharing classifications. But the point at issue is always one of qualifications.

This situation is perfectly well known to all concerned. The remedy, we believe, lies in such methods as we have already proposed for analyzing the requirements of jobs and measuring capacities. With this information at hand it will be possible for the Company to show definitely first, that the assignments are made on the basis of full knowledge of the facts, and, second, that favoritism plays no part in these promotions.

While there are other groups which also affect the attitudes of all classes of employees, these five which we have mentioned constitute the groups in which the attitudes are most clearly defined and those which have the most immediate effect upon relationships within the organization.

## PART V

### ORGANIZATION RECOMMENDED

The maintaining of the desired relationships among people at work is a most important phase of management. It requires a definite determination and statement of Company policies. It involves the acceptance by the Company of its responsibilities and the fulfilment of its obligations.

It demands the use of scientific methods in the hiring and handling of men, in looking after their health and safety, in providing for their education and training, in promoting their welfare and in carrying on research in the field of human engineering, and these methods and functions must be coordinated. It necessitates the recognition of the importance of attitudes.

The organization of the Company must be so established as to meet these requirements, although the type of organization may differ from one company to another.

We recommend (1) that the three chief executives of the Company assume the primary responsibility for the personnel organization; and (2) that, reporting directly to these executives there be established a Personnel Committee made up of the technical heads of the five branches of the Personnel Department, comprising Welfare, Employment and Personal Contact, Planning, Statistical and Research, Education and Training, and Hygiene.



In Part III we have stated the fact that the chief executives of the Company must themselves carry certain of the functions which are generally thought of in connection with the personnel work of an organization.

This must be true in any situation where the chief executives determine the labor policies of the Company, for the labor policies control the nature of the relationships between the Company and the people at work.

In the determining of the labor policies the chief executives need to have constant, intimate, personal touch with the experts responsible for the technical side of the human relationships.

It is a mistaken conception, often advanced, that labor policies can be permanently settled upon and stated for all time. They are frequently referred to as something that must be fixed and adhered to under all circumstances. This may be true of very general policies, but business cannot be run on general labor policies any more than on any other generalizations.

Labor policies need to be concrete and specific if they are to be intelligently administered. But the policies of five years ago are no longer adequate. They must change to meet the new conditions that are constantly arising in industry.

It is in order that the chief executives may be able to mold the new labor policies of the Company intelligently and with assurance as to the accuracy of the facts with which they work, that the contact with the technical heads is provided for in our proposed organization. Provision is also made for these five heads to be brought together for the coordination of their work in the Personnel Committee.

You have in your Company, at the present time, two of these five heads: Dr. B. in the Hygiene Division and Dr. G. in the Welfare Division.

Three men are needed, of equal ability in their profession, for the other three divisions. The men for these positions should be determined upon at as early a date as possible, both in order that they may each become familiar with the developments of the work that you will want to undertake in these three fields and in order that the Personnel Committee may begin to function as a group without unnecessary delay.

This organization, set up and operating, will constitute of itself very real progress in the solution of the problems of relationships of the people who are brought together in the ——— Company.

# A SURVEY SUBMITTED TO THE FOUNDRYMEN'S ASSOCIATION OF A CITY

## PART I—THE FINDINGS OF THE SURVEY

### PART II—A STATEMENT OF POSSIBLE LABOR POLICIES AND A PROPOSED LABOR PROGRAM

#### PART I

##### THE FINDINGS OF THE SURVEY

THE chief asset of The City Foundrymen's Association seems to be its present ability to earn high profits and at the same time to maintain the highest wage scale for molders and coremakers in the country.

It is generally feared that when active competition for business is resumed the present high wages will become a most significant factor in production costs. Many employers fear they will be unable to compete successfully with non-union shops. It is stated the union men are drawing a higher wage per unit of production than the non-union men. In addition, the union's opposition to piece-rates complicates the difficulty.

The unity of present action among the members of the Association should be judged most valuable. When the history of the Association is recalled and the consequences of a previous lack of unity are realized, the advantages of a closely knit organization are more fully appreciated. During the last 20 years the union has consistently acted as a unit. The employers, on the other hand, have broken ranks periodically and usually lost the points of contention either at the time of a strike or shortly after its cessation.

With the industry practically free from absentee ownership there is no reason why the employers should not act in a collective and harmonious manner. Most of the foundries are fortunately operated by their owners, giving them an immediate perspective upon the problems of administration.

Despite having but one main union organization to consider the employers and men are continually fearful of strikes or lock-outs. They feel a lack of understanding in the union aims, and

are skeptical regarding its willingness to cooperate for mutual interests.

The fusion of the coremakers and molders into one body gives the employers a relation to an organization most nearly approaching a shop union. This condition should serve to prevent jurisdictional strife among unions.

Union leaders consider their past relationship with employers on the whole satisfactory. They believe that successful cooperation can be carried on between management and union for improvement of the industry. They assert that the foundry owners are personally well liked by the union men. From the information of these union leaders, there do not appear to be any employers who might be singled out as particularly responsible for difficulties between management and men.

The labor problem is not complicated by seasonal or fluctuating employment. The foundries have furnished employment for all the men they could secure for several years. This has prevented any evil results from wholesale lay-offs.

The union seems appreciative of the steadiness of the work in the City area. It also appreciates the high basic wage it is receiving. While the present wage should be expected to attract skilled workers to the City industry, no such results have been reported. Some employers charge this to the activities of the local union officials.

Some employers feel that a high rate of turnover, principally among their unskilled workers, is a costly item of operation. There is a general complaint against an insufficient supply of labor. Many employers declare a shortage of skilled workers.

Management is in possession of what appears to be full freedom in the hiring and firing of employees on a merit basis. In this connection, however, management admits that the foremen, who exercise this prerogative of employment and discharge, are of poor quality. Some employers believe the inefficiency of the foremen has reached a critical period. Union leaders emphasize this as fact. They attribute considerable of the present unrest among workers to the inefficiency of foremen. They say foremen are too much the mouthpiece of management, rather than the supervising corrective agency for cooperative production. They emphasize the point of corrective supervision. They consider the attitude of the average foreman as solely critical. Helpful instruction from foremen is rare.

The lack of a scientific system of setting jobs is a point of major concern among employers. It is asserted that an actual retardation of production has occurred, that the union is responsible

and that it is practically impossible for superintendents or foremen to insist upon a set day's work. At the same time, some employers have agreed that most foremen are not competent to set jobs.

The consensus of opinion is that production has depreciated materially since 1914. While actual figures are not available to indicate exactly what reduction has taken place, the employers feel that unit production today is not more than 75% that of 1914. This is attributed to the activities of the union. With it has developed a marked indifference to their work by workmen. On many of the jobs the union men require no helpers. On these jobs the decrease in production is even greater than where part of the work is performed by helpers.

The union informally admits that it has become necessary to curtail the production demands on certain jobs. But the union also asserts that a lack of competent and stable unskilled labor is probably the most important cause for any retardation which has taken place in production. The union leaders say there has been a marked depreciation in the class of helpers during the last few years. The unstableness of the present helpers, they say, has made it practically impossible to use them effectively.

The union denies that its curtailments through shop committees have been at the expense of a fair day's work. It considers its action as defensive against the once exorbitant demands of management. Union leaders admit the worker has been placed in a trying position where he is harassed on either side as a result of the union's restrictions and management's demands on production.

One union representative believes the only proper method of setting a job is to permit the third or fourth day's production of an individual to be his standard. This attitude naturally opposes the use of skilled job setters. Its tendency is to cause the poorest workman's effort to become the standard for the most skilled.

The union leaders believe the work of coremakers and molders is inherently interesting. They say a distinct craft pride which once existed has been noticeably diminished. They believe something should and could be done to stimulate craft pride and make foundry work more attractive.

The union leaders say that one of the most needed improvements in the industry is a general clean-up of the foundries. They believe the industry is unnecessarily unclean and unattractive. Specifically, they assert there are few foundries which are not conspicuous for the filthiness of toilets, dirtiness of locker rooms and the inadequacy of shower baths.

Most foundries are now producing an amazing variety of products. This entails the maintenance of extensive and most expensive equipment. The opinion is that this condition will eventually necessitate an allocation of products which will permit specialization by foundries. If, as it is stated, the trend of the local market is to an increased demand for light castings in quantity, eventual specialization seems inevitable.

An outstanding weakness of the industry is the lack of sufficient apprentices. On every hand we have found not only the employers but union leaders as well, seriously concerned about the insufficient development of future skilled workers for the industry. The employers complain of their inability to secure and keep apprentices. The union leaders believe the failure to maintain apprentices is due to the unattractiveness of the industry and a lack of concerted effort to arouse prideful interest in the craft. They say the Apprentices' Auxiliary Union was organized to bring the apprentices into a body where such interest might be created. It was their purpose to have the more skilled men of the trade instruct the apprentices in the finer phases of the craft and educate them in the more technical processes. The effort failed, they say, because of inadequate direction, and the fact that it consumed too much after-work time.

The paramount weakness in the industry is that there is no method of properly rewarding merit among workers. The present tendency is to abandon any wage above that set by the terms of the agreement with the union. This affords no incentive to a workman to make himself more proficient. It recognizes no individual differences. It tends to produce a lack of interest.

A definite labor policy has never been maintained by the Association. Plants have differed greatly in their methods of dealing with labor. Some have accepted the strength of the union and recognized it as an agency for possible good. The majority, however, have recognized the strength, disputed the possible good and used every opportunity to defend themselves against unjust restrictions and practices. Since 1914 the employers have signed agreements with the union which called for recognition of the shop committee. Some members of the Association have, however, refused to recognize the committee, though signatories to those agreements.

Union leaders say the union has come to expect little from the voluntary action of employers. They declare that those improvements which have come about to the benefit of the workers are the result alone of the aggressiveness of the union.

Most employers agree that labor has been pretty roughly treated

in the past. Some believe that a large part of the union's present-day arbitrariness is a result of that period of ill-treatment.

We understand graft has never been sought by the local union officials or offered by the Foundry Association or foundry owners. Considering the frequent report of activities in other industries, this is rather an excellent commentary on the union heads. It is further said that at no time have the union officials employed the organization for their personal aggrandizement.

The employers generally concede that the international officers of the union are capable and broadminded men who are willing to work in the interests of the industry as a whole.

The chief criticism of the local union officials is that they are unable to wield authority over a radical group composed of socialistic workers who were chiefly identified as advocates of the \$10 wage. Several employers have said the leaders of this radical element are in the main competent and honest workmen who might be converted to an appreciation of the necessity of cooperation. As for the employees as a whole, most employers seem to think their workmen for the most part loyal and industrious and willing to render a fair day's work.

## PART II

### A STATEMENT OF POSSIBLE LABOR POLICIES AND A PROPOSED LABOR PROGRAM FOR THE CITY FOUNDRYMEN'S ASSOCIATION

#### POSSIBLE LABOR POLICIES

Under the present circumstances in this industry there are three very distinct labor policies, which should be considered by the Association, i. e.

1. To ignore the union
2. To fight for a non-union shop
3. To set up an adequate organization to cooperate with the unions

Where an industry is not highly unionized, to ignore the unions is a policy that is practicable. However, such a policy is not possible in this industry at the present time. The foundries are thoroughly unionized. The union possesses strength, has been recognized for over 20 years and will not permit itself to be ignored in any important relationship. Probably no member of the Association would contend that it is possible to ignore the union

completely in his foundry. Accordingly the policy of ignoring the union should be regarded as impracticable in this industry at this time.

The policy of ignoring the union should then be dropped and attention should be given to the two possible alternatives, i. e.

To fight the union

or

To set up an organization adequate  
to cooperate with the union

Each of these is possible and each offers many advantages and many difficulties.

The possible advantages from fighting the union and establishing open shops may be summarized as follows:

1. It might make possible increased production per man, per hour.
2. It might reduce the danger of strikes.
3. It might remove the limit on production.
4. It might remove the necessity of dealing with men not in the employ of the foundry.
5. It might remove the objections to labor-saving devices.
6. It might make possible an immediate extension of piece-rate system of pay.
7. It might increase the loyalty of employees to owners.
8. It might make it easier to reduce wages if the anticipated reduction of the high cost of living comes.
9. It might remove the necessity for any form of collective bargaining.
10. It might restore to management the full control of the business.

In contrast to the possible advantages to be secured from establishing the open shop, the following are possible advantages to be secured from setting up an organization adequate to cooperate with the union:

1. It avoids the expense of a fight.
2. It avoids a lockout with its necessary hardships to faithful and loyal workers.
3. It avoids the disruption of the foundry industry in this city and the possible bankruptcy of the weaker owners.
4. It meets the union half way in its expressed willingness to cooperate to promote increased production.

5. It creates an agency to secure the cooperation of management and the union in developing a program to advance the interests of both employers and employees.

The possible advantages offered by each of the contrasted policies seem highly desirable. The deciding factor, therefore, as to which is to be decided upon may well be this—which policy can be most surely and successfully carried out? It might well be an opportune time for one but not for the other. As a matter of fact, it seems that either policy might be decided upon at this time and carried out successfully.

The following conditions indicate the present as an opportune time to begin the fight against the union.

1. The Association is thoroughly organized and would present a united front, now, if ever.
2. Many of the owners have the reserve capital available for a prolonged and costly struggle.
3. If a fight were decided upon by the Association, the individual owners may be counted on to fight their own men in the interest of an open shop.
4. There is a shortage of coke, coal, and iron. A temporary shut-down would not increase the difficulties seriously.
5. Customers could not now find other foundries to do their work; they would sympathize with the foundry owners in the attempt to break the union; and would not transfer the patterns to other markets.
6. The cost of a fight would be largely absorbed by a decrease in the income tax and the excess profits tax of the foundry owners.
7. The open shop foundries in this city are forming an effective association and might aid this Association in the fight.
8. The officials of the molders' union are reported to be aiding the laborers in their attempt to organize.
9. It is reported that the union strike benefit fund is low at the present time.
10. The high cost of living makes it practically impossible for the workers to live without work for more than a short time.
11. There are factions in the union such that some of the molders might be expected to desert the union and seek employment with former employers in an open shop.

The present is likewise an opportune time to begin the creation of an adequate organization to cooperate with the union. The



following are cited as reasons for undertaking such action at the present time:

1. At no time in the past has there been an organized effort to cooperate.
2. Such a cooperative organization is needed to reduce the present labor shortage.
3. The present lack of apprentices would be improved by such an organization.
4. The harmony now existing among employers and their good-will toward their employees make such an organization possible.
5. The absence of jurisdictional disputes within the unions makes effective cooperation possible.
6. The international leaders of the molders' unions are progressive and are desirous of cooperation with employers.
7. The local officials of the unions manifest a desire to cooperate.
8. A statement issued by the International Molders' Union and approved by the local officials of the union practically requests the cooperation here proposed. The following is a quotation from this statement: "We submit that production can be enhanced through the cooperation of management with the trades union agencies, which make for order, discipline, and productivity. . . . To promote further the production of an adequate supply of the world's needs for use and higher standards of life, we urge that there be established cooperation between the scientists of industry and the representatives of organized workers."
9. If the union is willing to perform according to its expressed intention, and if management seeks only what is just, then an adequate organization for cooperation will ultimately secure all that labor seeks by organization, and all that the employer hopes for by an open shop. That is to say, the advantage that might be secured by a successful fight against the unions will also be secured by successful cooperation with the union.

To summarize:

The survey of conditions existing in the foundry today bring out clearly certain facts:

The Association cannot ignore the union.

The Association might gain much from fighting the union and setting up open shops.

The present is an opportune time for waging such a fight.

The Association might gain much from setting up an adequate organization to cooperate with the union.

The present is an opportune time for setting up such an organization.

The present industrial relations in the foundries are unsatisfactory. The ends to be obtained by a definite labor policy are desirable and the conditions for carrying out a labor program at the present time are favorable. All these combine to induce the Association to prompt action.

If you decide to set up an organization to cooperate, the following tentative program is proposed:

First, a Labor Manager should be selected and then, as necessity demands, a staff should be developed. Ultimately it might consist of the following:

A PROPOSED LABOR PROGRAM FOR THE CITY FOUNDRYMEN'S  
ASSOCIATION—INDUSTRIAL RELATIONS STAFF

- (a) Labor Manager
- (b) Director of Training
- (c) Labor Statistician
- (d) Stenographer
- (e) Clerk

In addition to the Industrial Relations Staff it is quite probable that conditions would demand the creation of a second agency. This second agency might be named and constituted as follows:

FOUNDRY BOARD (IN EACH FOUNDRY)

- (a) Three molders (appointed by union from employees in that foundry)
- (b) Three from the management of that foundry
- (c) The Business Agent of the union—ex officio member
- (d) The Labor Manager—ex officio member

The Industrial Relations Staff and the Foundry Boards in performing their functions, and also the Association and the Union in interpreting the terms of the agreement, would, in extraordinary cases, need a court of final appeal. This court might be named and manned as follows:

## CITY INDUSTRY BOARD

- (a) Two local officials of the Molders' Union
- (b) One international officer of the Molders' Union
- (c) Two members of the Foundrymen's Association
- (d) One appointed by the Association, but not a member of it
- (e) Impartial Chairman (acceptable to the other six members of the Board)

The sort of duties that would be performed by each of the three agencies named can be made clear by listing concrete instances under each.

The Industrial Relations Staff would enlist the assistance of the union officials in performing such functions as:

1. Securing a more adequate agreement with the union
2. Supervising the administration of the agreement
3. Directing the activities of the foundry boards
4. Presenting cases before the City Industry Board
5. Securing an adequate supply of apprentices
6. Developing an improved course of training for apprentices
7. Developing and conducting a practical course of training for foremen
8. Collecting data on sources of labor supply, cost of living, comparative wage rates, job setting, man-hour production, and so forth
9. Preparing propaganda for labor, for management, and for the public

The Foundry Boards would perform such functions as the following:

1. Cleaning up the working conditions
2. Influencing the men to clean up
3. Removing the causes of grievances
4. Increasing production through increased cooperation of men and management and in improving methods of production
5. Settling grievances
6. Spreading propaganda on "the City foundries as a good place to work in"

The City Industry Board would perform such functions as the following:

1. Interpreting the various statements in the agreement

2. Deciding on appeals from the foundry boards
3. Ruling on general principles affecting the agreement

It should be kept in mind that the proposed program and the functions cited are all to be regarded as strictly tentative. The final plan must be based on the combined wisdom and hearty cooperation of the Association and the Union, of the Labor Manager of the Association and the Business Agent of the Union, and of the management in each foundry and the workers in each foundry.

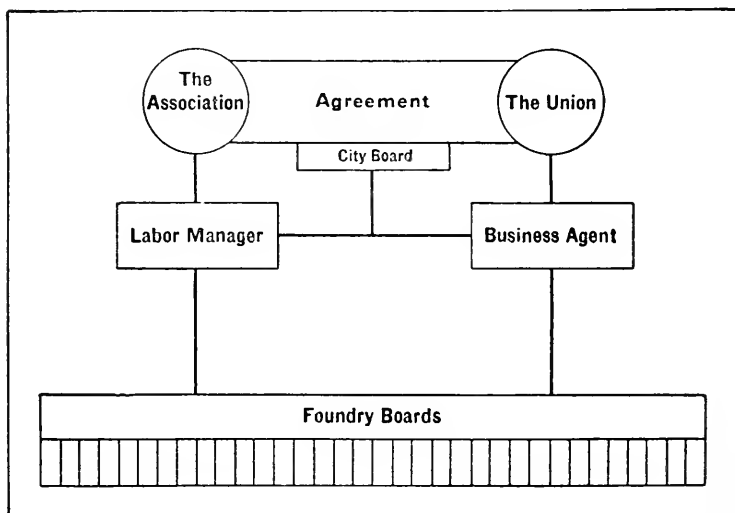


Figure 82: Chart showing Plan of Agreement between the Foundrymen's Association and the Union, and cooperation enlisted

## EXTRACT FROM A SURVEY SUBMITTED TO A PAPER INDUSTRY

### TRAINING

THE need for a conscious policy of training in the paper industry has been indicated in the section on Present Conditions. There is first the problem of selecting for training in the most difficult and technical types of work those men best able to absorb that training and to master the work. There is, secondly, the problem of providing the best possible instruction *on the job*. If this practical training in paper making can be supplemented by theoretical training in the "reasons why," the results will undoubtedly be more rapid and permanent. We are certain that the assignment of a man fitted for this work will yield better results than the continuance of training as an incidental duty of the foreman. A good foreman is not infrequently a poor teacher.

There is a belief in the paper industry, that paper making is more nearly an art than a science. While this may be true in part, we cannot subscribe to the corollary which seems to go with this belief: "that paper making cannot be taught" but must be acquired by long association and a sort of organic absorption.

We think the present method of training can be improved in four ways.

It can more effectively select the men for training.

The time spent on successive steps of progress can be shortened.

The time spent by the supervisory force which does the training can be economized.

The progress of an individual can be known and the completeness of his mastery accurately determined.

We are convinced that methods which have been used successfully elsewhere can be adapted to the paper industry and that the results in production will justify a substantial investment in time and money.

It is recommended that training methods with purpose and known objectives be adopted as a conscious policy.

Expediency would seem to limit the early efforts to one for producing skilled operators for the Beaters, Paper-Machines,

Calenders, Rewinders. Ultimately the plan may develop to include Pulp Mill workers, maintenance men, power engineers, foremen, and even into the technical and theoretical branches.

A study has been made by use of the application of the so-called "Project Method of Teaching" to Industry. This has resulted in the conclusion that by this method, the time taken by a learner to master a job can be surprisingly reduced while the thoroughness with which the work is learned is materially bettered.

Practical application of this method of training is already under way in another plant. The speeding up of the individual in the mastery of prescribed work can be further accomplished by the application of Mental Tests. It has been proved with a large group of men under training that the "Ability to learn" can be pre-determined with much accuracy.

The use of tests of any nature must always be with the utmost care and we do not suggest their introduction until much preliminary preparation has been accomplished.

\* \* \* \* \*

Most industrial training lacks definiteness, is unnecessarily slow and gives no adequate information about the completeness of the learner's grasp of the subjects taught.

The "Project Method" of instruction corrects much of this. It provides the learner and instructor with questions and job-tests bearing specifically on the significant items which he should know about the job to be mastered. The progress of the learner depends on his ability to answer the questions and master the job-tests without relation to the time he takes to learn them.

The job-tests furnish a practical check on the learner's knowledge and skill throughout the steps of his instruction.

Progress is automatically adjusted to ability, thus reducing the time required for many learners to completely master the jobs taught. If learners are selected on the basis of their mental alertness or ability to learn, the production of competent workers is accelerated to an amazing extent.

## REPORT SUBMITTED TO A MANUFACTURING CORPORATION FOR THE ORGANIZATION OF ITS EMPLOYEES

WE recommend that an organization of employees be created in the ——— Company plant. We would like to submit for joint consideration by the Company and its employees the following plans for such an organization:

### PURPOSE

The purpose of the organization shall be that the employees and the Company may together

1. Build up a fair and stable partnership which will bring into action all the resources and capacities of both parties, and assure to each its just returns
2. Create the machinery for meeting the ever-changing industrial conditions
3. Discover the cause of difficulties and unrest affecting either an individual employee or a group within the plant, try out methods of correction and determine upon which of the methods is best
4. Make necessary adjustments and put the best methods into practice
5. Provide for a group within the organization whose particular functions shall be
  - a. To study conditions within the plant
  - b. To keep abreast of the times and even to search into the future for guidance in industrial problems in general
  - c. To render counsel and assistance to any group within the organization if such help is requested by them
  - d. To suggest ways and means of strengthening the organization, and increasing its effectiveness as a constructive force operating to the benefit of both parties involved.

### ORGANIZATION

There shall be:

1. A departmental organization of employees

2. An interdepartmental organization of employees
3. A factory research council

The departmental organization shall consist of all of the employees in a department.

The interdepartmental organization shall consist of one member from each department elected by the employees in that department and in addition three members at large elected by the employees of all departments.

The factory research council shall consist of one representative of the sales department, one representative of the finance department, one representative of the inspection department, one representative of foremen, one representative of the interdepartmental council appointed by its members, and two representatives of the employees elected by them.

#### FUNCTIONS

##### DEPARTMENTAL ORGANIZATIONS

The function of the departmental organization will be to administer the affairs of the department through regular monthly meetings and such special meetings as may be called either by the directors or by 10% of the employees of the department or by the Company.

In case such special meetings are called the agent shall set forth the purpose of the meeting in writing three days in advance of the date on which the meeting is to be held.

In case of any suggestions, grievance or change desired within the department on the part of an individual or a group of individuals, the matter should be submitted to one of the directors for that department.

Should that director decide that action is undesirable or inadvisable, the matter may then be referred in writing to the directors as a group for a decision.

Should the directors report that their decision supported the opinion previously given by the individual director first consulted, the matter may be referred to the interdepartmental council provided that the case is set forth in writing and indorsed by 10% of the employees in that department. In such instances the decisions of the interdepartmental council will be final.

Should the individual director decide that the case warrants action, he may take the matter up direct with the foreman of that department or refer it to all the directors of that department for action.



If the directors as a body decide that action is warranted, they may try to adjust it directly with the foreman or submit it in writing to the manager direct. They also have the option of submitting the case in writing to the interdepartmental council.

A record shall be kept of all cases handled either by individual departmental directors or by the departmental boards, and copies of all such records shall be immediately turned over to the interdepartmental council.

#### INTERDEPARTMENTAL COUNCIL

The interdepartmental council shall be the administrative head of

1. The factory employees as a whole
2. The departmental organizations

It shall arrange for two regular mass meetings of employees a year, providing the program and the presiding officer. It can call a special meeting upon majority vote of its members and shall arrange for such special meetings called by the Company or by a petition signed by 10% of the employees. The agent calling any special mass meetings must set forth in writing the purpose of such a meeting three days in advance of the date set for the meeting.

It shall consider questions submitted by either 10% of the employees of any department or by departmental directors and in case of disagreement between a group of employees and their directors, its decisions shall be binding.

It may at all times treat with the foremen or with the manager, and may appeal any case to the general council which has previously been submitted in writing to the manager. The decision of the General Council shall in all cases be final.

#### FACTORY COUNCIL

As previously set forth, the duties of the Factory Council shall be to consult and advise with the various other groups and the constructive work of the Organization as a whole should be forwarded constantly by the efforts of the Factory Council.

#### COMPANY

The Company will cooperate with the various groups created within the Organization. It can meet the employees in special departmental mass meetings or in factory mass meetings.

It can meet with the Interdepartmental Council by appointment for a specific purpose.

For this work the Company and the employees agree to the following financial arrangement: The Company shall pay over to the Interdepartmental Council three thousand dollars (\$3,000) and the employees shall pay dues amounting to  $\frac{1}{2}$  of 1% of their annual earnings.

The Interdepartmental Council will apportion the necessary sums of money to the Departmental Councils and it shall be understood that the Interdepartmental Council shall use a part of their appropriation for the employment of an individual who shall report to them and devote his whole time to various phases of the work of the Employees' Organization.

Attached herewith are recommendations for the immediate work to be undertaken and the methods to be employed.

Should it be desired to so organize, we are prepared to submit specimen forms for nominations and elections and to assist in the work of organization.

## AN EXTRACT FROM A SURVEY MADE FOR A STREET RAILWAY CORPORATION

IN our survey of the ——— Company we have attempted to analyze the situation from two points of view. First, what are the possibilities of worth-while results from research on temperament and disposition of motormen and conductors? Second, what improvements are possible in present personnel procedure, and what is the most practical way of making them?

Ultimately, of course, there will be a very close relationship between the results of research on temperament and personnel procedure. For the time being, however, they may be considered separately, since either program can be started without necessarily involving the other. For this reason, this survey will be divided sharply into two parts, the first dealing with research, the second with personnel procedure.

With reference to the research on temperament of motormen and conductors, three considerations are important,—the practical usefulness of the results, the method of conducting the research, and the cost.

It is a matter of common knowledge that the value of conductors and motormen as agents of the Company depends largely upon facts of temperament, emotion and disposition. The schedule-burner, the chronic-accidenter, the railroad grouch are examples of the temperamental disorders that constantly arise to affect the usefulness of a man as an employee. At present, little is known in a scientific sense concerning these and other disorders. It is the purpose of the proposed research to ascertain the facts, and to apply this knowledge to the management of these men.

This knowledge will affect economies in operation in three important ways.

*First, it will aid in the discovery of men who are temperamentally unfitted for railroad work.* This knowledge will be used, both in the selection of motormen and conductors for employment, and in the detection of cases among present employees that must be looked upon as "incurable"; thereby reducing the losses incurred through these occupational misfits.

*Second, it will give the basis for "treatment" of men temperamentally unsound, but who may be restored to full effectiveness.*

Experience has shown that chronic cases of instability, disobedience, irritability, grouching, "trouble-making," and so forth, arise from definite natural causes, and that they respond to proper treatment just as do cases of measles and mumps. When the true causes and nature of these conditions are understood, it will be possible through right handling to correct cases that would otherwise represent a total loss to the Company.

*Third, it will give the basis for the prevention of temperamental weaknesses and breakdowns.* The knowledge resulting from the research can be used as the foundation for real training in mental hygiene. Some of this training can be given at the time of original instruction, some through the medium of "Service Talks," some through personal talks with suspected cases. Men who have become technically proficient as a result of experience in the Company represent a considerable investment that is necessarily wasted if they "go bad" temperamentally.

The research will also point out any conditions of work that tend to bring about temperamental disorders. Such conditions as exist should be known, and steps could then be taken to remove them or to reduce their seriousness.

In addition to these three major uses of the results of the research, the knowledge gained will be of great importance in the management of the men, whether in groups or as individuals. A better understanding of temperamental types and tendencies by executives will lead naturally to a sounder cooperative relationship.

In carrying out the research, three methods will be used. We believe it will be clear that there is nothing in this program that will be in the slightest degree objectionable to the men.

The first method would be through exhaustive analysis of the work of motormen and conductors and of the conditions under which it is done. Because of contemplated changes, affecting the occupations, we should begin with the analysis of the social relationships that are involved in the work and the effects of these on temperamental stability. When the time is opportune, the analysis of the technical features of the work would be begun. The analysis of social relationships will be made by systematic observation and the general "case method" approach, i. e., accurate description, classification and analysis of numerous concrete cases of relationship with the public.

The second method would be through psychological analysis of men who are clearly temperamentally unsound. It is through the study of abnormal conditions such as these that very important facts will be discovered. The actual number of men in-

volved in this connection would not be large, and experience in psychoanalytic work has shown that, far from there being any antagonism, a most sincere feeling of gratitude and appreciation is the invariable result of proper analysis.

The third method would be statistical. Here the relationships between race, nationality, age, education, and so forth, and the temperamental efficiency would be established.

It is evident that this program does not involve any wholesale testing of the men, and we are confident that if the true purposes of the Company are explained to the men that are involved, only the heartiest cooperation in the research will result. This has invariably been our experience elsewhere.

# A SUGGESTED PERSONNEL ORGANIZATION SUBMITTED TO A PUBLIC SERVICE CORPORATION

## I

*General Statement of Function.* The function of the Personnel Organization is to secure and maintain a highly effective force of employees throughout the Company, and to provide an agency through which can be discharged the obligation to society which the Company assumes as an employer of labor in this community.

*General Statement of Type of Organization.* The organization herein proposed places the Personnel Organization under an Assistant to the President. The work of the Organization is not divided functionally according to common practice; but instead it is divided according to types of labor in the Company's employ. A staff organization is proposed to care for various technical activities that are common to the departments of the Personnel Organization. A Committee on Personnel is also proposed within the organization whose decisions should largely influence the policies guiding the operation of the Organization.

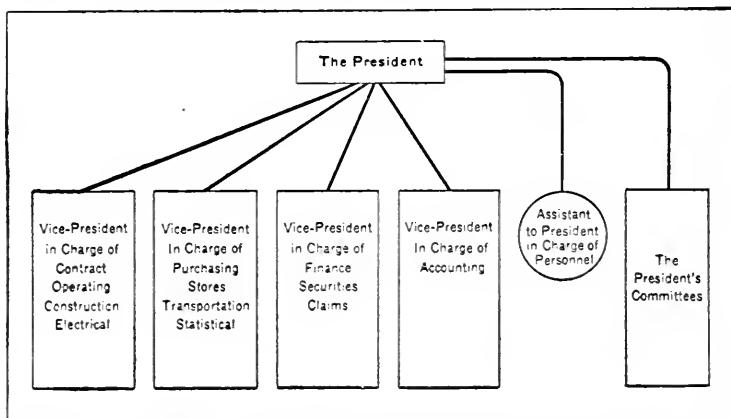


Figure 83: Relation of the Personnel Organization to the President, Vice-President and the President's Committees

## II

RELATION OF THE PERSONNEL ORGANIZATION TO THE PRESIDENT,  
VICE-PRESIDENTS, AND PRESIDENT'S COMMITTEES

Figure 83 illustrates the relation of the Personnel Organization to the higher executives and committees of the Company. The Assistant to the President in charge of Personnel acts for the President, and such authority as is delegated or withheld from him is so placed by act of the President. The Personnel Organization does not report to any Vice-President or Committee, except as the President withholds from it authority and accountability and assigns it specifically to a Vice-President or Committee. When such authority and accountability are assigned outside the Personnel Organization, the Assistant to the President reports to the responsible agency only in the sense that this agency is now acting for the President.

## III

RELATION OF THE PERSONNEL ORGANIZATION TO THE  
EMPLOYEES' COMMITTEE

Figure 84 illustrates the relation between the Employees' Committee and the Personnel Organization. This relation has been

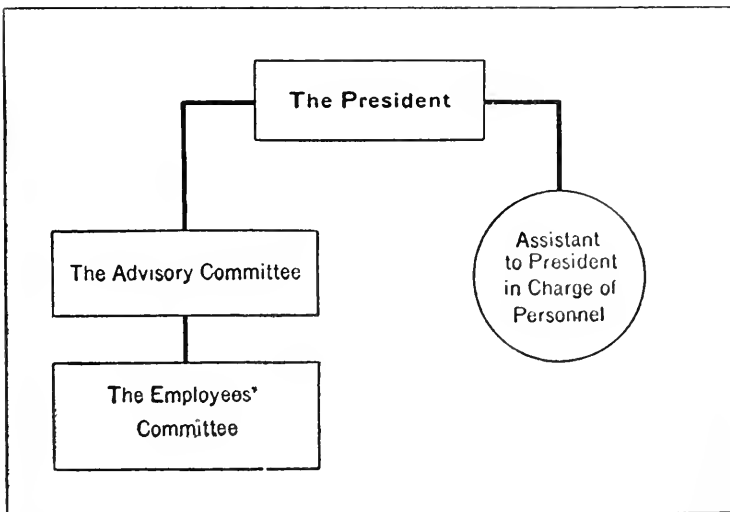


Figure 84: Chart showing the relation of the Personnel Organization to the Employees' Committee

one of the most difficult to work out, but the point of view taken in the preceding section clarifies it greatly.

The Employees' Committee should have, as in the past, an important function for a considerable period of time in the consideration and determination of policies affecting wages and conditions of work. The authority so gained comes by virtue of the delegation of this responsibility by the President, first to the Advisory Committee, and subsequently, by this Committee to the Employees' Committee. The Employees' Committee, therefore, is responsible for matters affecting personnel by reason of authority delegated by the President, and its jurisdiction over matters affecting the Personnel Organization extends only so far as specific authority is so assigned.

#### IV.

*Division of Responsibility.* Figure 85 illustrates the division of responsibility within the Personnel Organization.

The Personnel Organization is headed by an Assistant to the President. His duties are the administration of the Organization and responsibility for its effective work. His chief interest will be in the larger aspects of labor relations, the actual technique of employment being in the hands of the line and staff of his organization.

The Personnel Organization is divided into three Departments and a Staff. These Departments are the Operations Personnel Department, the Office and Sales Personnel Department, the Executive and Technical Personnel Department. This division into Departments is determined by the different types of employees of the Company.

Within the Personnel Organization there is constituted a Committee on Personnel. This Committee is set up to discuss problems of labor policy and to work out methods of coordination between all parts of the Personnel Organization and between the Personnel Organization and the Company as a whole. This Committee is formed as follows:

- Assistant to the President, Chairman
- Head of the Operations Personnel Department
- Head of the Office and Sales Personnel Department
- Head of the Executive and Technical Personnel Department
- Staff Assistant
- Chairman of the Advisory Committee, Ex Officio
- Staff Member on Coordination and Records, Secretary



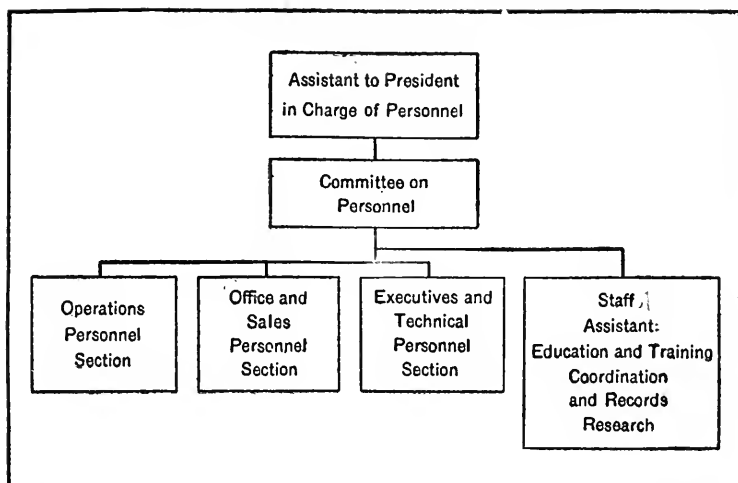


Figure 85: Division of responsibilities within the Personnel Organization

## V

*The Operations Personnel Department.* This Department will have jurisdiction over operating personnel. This does not include persons in the Operations Department whose work is of essentially an office or clerical nature. Neither does it include highly trained technical men or executives. Questions of jurisdiction will be settled by the Assistant to the President.

The Operations Personnel Department is responsible for:

1. Cultivation of sources of labor supply
2. Filling of requisitions for operating personnel whether through promotion, transfer or hiring. The use of occupational descriptions, qualification cards and tests will be valuable here.
3. Inspection and report on wages and conditions of work.
4. Adjustment of grievances in accord with delegated authority
5. Development of channels of promotion
6. Recommendations regarding training
7. Determination of reasons for separations

It will be necessary for the Operations Personnel Department to have individuals giving part time to the discharge of these functions in outlying districts. This Department will be responsible for training these individuals.

## VI

*The Office and Sales Personnel Department.* This Department will have jurisdiction over all persons engaged in work of an office or clerical nature, with the exception of executives and highly trained technical men.

The functions of this Department are exactly those of the Operations Personnel Department transferred to the Office and Sales personnel.

This Department will include women to interview women applicants for employment.

## VII

*The Executive and Technical Personnel Department.* This Department will have jurisdiction over executives above the rank of foreman and highly trained technical men. Its duties are:

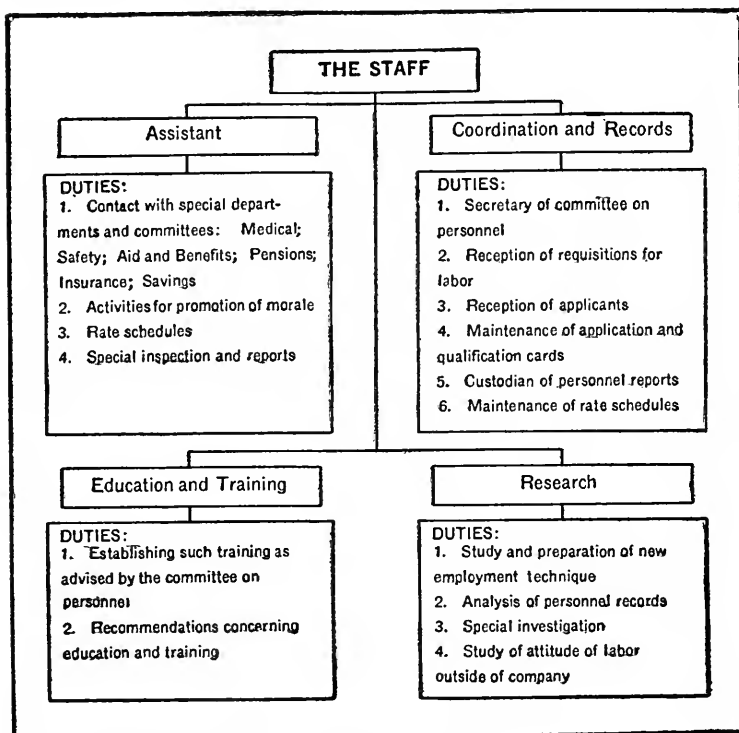


Figure 86: Duties and Personnel of Staff Organization

1. Cultivation of sources of labor supply for executive and technical positions
2. Recommendations for vacancies
3. Development of promotional channels
4. Establishment of understudies
5. Adjustment of grievances in accord with delegated authority
6. Informing executives of the attitude and point of view of labor, and of the labor policies of the Company

### VIII

*The Staff.* The staff of the Personnel Organization provides the three Departments with special technical assistance in matters common to all Departments. The Staff has four divisions, the Staff Assistant, Coordination and Records, Education and Training, and Research.

The Staff Assistant is really Chief of Staff. His duties are:

1. Securing cooperation and coordination of special departments and committees already established in the Company to deal with matters vitally affecting personnel. These departments and committees are:
  - a. The Medical Department
  - b. Safety Committee
  - c. Aid and Benefit Committee
  - d. Pension Committee
  - e. Insurance Committee
  - f. Savings Committee
2. Activities for the promotion of morale. He will cooperate with the Employees' Association in this work.
3. Special inspection to determine the effectiveness of the work of the Personnel Organization, and to determine the success of the work of departments and committees mentioned in 1.
4. Adjustment of rate schedules. This matter should be assigned from the Rate Schedules Committee to the Staff Assistant as soon as a man of demonstrated ability is secured.

The Staff Member on Coordination and Records will have duties as follows:

1. Secretary of the Committee on Personnel
2. Reception and allocation of all requisitions for labor
3. Reception of applicants for employment

4. Maintenance of application blanks and qualification cards
5. Custodian of personnel reports
6. Maintenance of rate schedules

The Staff Member on Education and Training will

1. Provide such training as advised by the Assistant to the President. He will use among other agencies the Employees' Association.
2. Recommend education and training that seems desirable.

This position offers opportunity for important constructive work

The Staff Member on Research will

1. Study and prepare new employment technique
2. Suggest and plan analyses of employment records
3. Conduct special investigations
4. Study the attitude of labor outside the Company

The man on this work may well be a recent graduate from a technical school of employment management.

## IX

*Summary Statement of Responsibilities of the Personnel Organization.* The functions of the Personnel Organization are

1. To study, cultivate and use sources of supply of employees for the Company as a whole
2. To utilize the labor assets within the Company as far as possible in meeting labor requirements
3. To inspect and report on wages and conditions of employment in the Company, and to correct undesirable conditions in accordance with authority delegated
4. To provide an agency outside the line of operating authority for the adjustment of grievances
5. To provide a consistent and aggressive plan for training and education
6. To determine and report on causes for separations
7. To stimulate and increase the morale of employees
8. To develop opportunities for advancement
9. To inform executives of the attitude and point of view of labor both within and without the Company, and to acquaint them with the labor policies of the Company

10. To encourage and coordinate the activities of various departments and committees in the company which affect Opportunities, Capacities, and Interests of the employees
11. To conduct research leading to the improvement of the technique of personnel administration

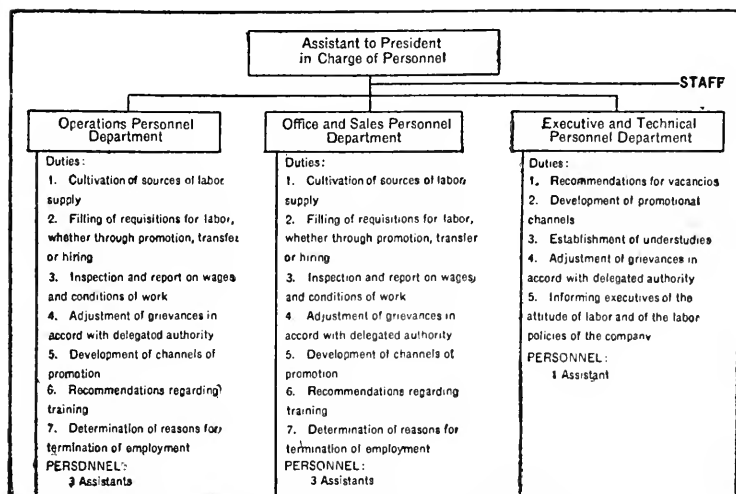


Figure 87: Duties and Personnel of Line Organization



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11/12



chop ~~xx~~

360

441

chop supermain - ~~Latin word~~

219 - Ratwig

118 beginning

